The Secrets Of The Craft

By Bro. John Mandleberg *(17 February 2000)*

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ENGLISH SPECULATIVE FREEMASONRY IS an exposition of morality based on orthodox revealed religion. While its members are pledged to maintain the secrecy of its modes of mutual recognition, there is no evidence that English Freemasons, operative or speculative, possessed any such secrets before the seventeenth century. Furthermore, even though the moral allegories of English speculative Freemasons are constructed around the tools etc. of building craftsmen, this paper demonstrates that in England the latter possessed neither secret modes of recognition nor an esotery, and there is and can be no causal link between mediaeval operative craftsmen and the later speculatives. Mediaeval Master Builders, however, incorporated 'Sacred Geometry', often with Solomonic allusions into their designs, but this was explicitly overt. Cinquecento neo-Platonism imbued intellectual society, and specifically the architects, with the concept of God as the Great Geometer. The monogradal English Fellowship preserved within its allegorical rituals the neo-Platonic concept of divine geometry as 'the Root and foundation of all sciences', a concept which had wide-ranging implications. This paper points out that even after external influences had transformed the English Fellowship into a bi- and tri-gradal society, it retained this principle as its raison d'être, but without secrets other than the modes of recognition.

> **'T**here may yet perhaps (notwithstanding all my care) be some difficulty to satisfy all my readers, as to what I have, or what I have not taken notice of. Who may think that there are divers things omitted (and doubtless there are so) which might deserve to be taken notice of; or but briefly touched, which might have deserved a fuller discourse; and some things inserted, which (in their opinion) might have been spared, or needed not to have been so fully handled. But as to such things, I must be content to leave myself to the reader's Candor; or to leave the Readers themselves to satisfie one another. Amongst whom, some may be found to Blame, what another Commends, and some to commend what another Blames.
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> And I have endeavoured all along to represent the sentiments of others with Candor, and to the best advantage: Not Studiously seeking opportunities of Cavilling, or greedily catching at them if offered. (For there is no man who can write so Warily, but that he may sometime give opportunity of Cavilling to those who seek it.)'

(John Wallis, *A Treatise of Algebra both Historical and Practical, shewing the Original, Progress and Advancement thereof, from time to time; and by what steps it hath attained the Heighth at which it now is.* Preface, p. *viii.* Printed By John Playford, for Richard Davis, Bookseller, in the University of Oxford, 1685.)

The 'classical' view of post-seventeenth century speculative Freemasonry – as Wald put it in another context, 'the classical view is one that is wrong, but it is ancient enough to be forgiven'[1] – is that in some way the system preserves both a vestige of the working practices of English mediaeval stone-workers and also secret information which they are presumed to have possessed. This is still an implicit presumption among many members of the present day Craft, even if its source is no more than what Galbraith would have characterised as 'the collective wisdom of the tribe'.[2]

That freemasons today are considered to be the recipients of valuable secrets is reinforced by the all-embracing Charge wherein the Initiate is told that secrecy is one of the foremost excellences of character to which his attention may be peculiarly and forcibly directed – he is specifically instructed never improperly to disclose any of the masonic secrets which have been, or may at any future period be, entrusted to his keeping.[3] If he seeks clarification about how far this should extend, he may refer to the fifth section of the sixth of the 'Antient Charges' reprinted to this day in each successive edition of the *Book of Constitutions* of the United Grand Lodge of England. Here he is instructed 'not to let your family, friends and neighbours know the concerns of the Lodge &c'.[4] It is not unreasonable for any organisation to wish to conduct its affairs in private, but succeeding generations of conscientious freemasons have tended to interpret this injunction very strictly, apparently on the assumption that every part or parts, point or points, of procedure within the Lodge may enshrine arcane information which must not be divulged to the popular and uninstructed world. To be thus minutely scrupulous may have misled those who are not freemasons as to the aims and objects of the Craft.

Evidently there would be no point in providing members of an organisation with means of mutual recognition, wherever these may have originated, unless the recipients showed some caution before disclosing them. Those in use today are indeed specifically communicated as 'secrets'. But even the late and respected Bro. Harry Carr, perhaps the most vigorous and eloquent proponent of the continuity of speculative Freemasonry from operative lodges, wrote that in England in the fourteenth and fifteenth centuries 'there is no evidence of the adoption or use of any secret modes of recognition'.[5] Even in Scotland the 'Meason Word' can be traced only to the middle of the sixteenth century at the earliest.[6]

If the signs, tokens and words in use in Freemasons' Lodges at the present time were unknown to English builders in the Middle Ages, is it possible to identify other elements of today's Craft procedures which could refer to long held secret matter? Seventeenth century English speculative Freemasons attached great importance to copies of the old manuscript Constitutions – the Antient Charges – but in the earliest of these there are no oaths of secrecy. These are comparatively late additions, and then only in a few versions.[7] There remains the possibility, however remote, that those who played leading parts in the mediaeval English construction industry became privy to some closely-guarded information. Even oblique references to this might have perished, for example in the destruction of the records which took place during the Grand Mastership of George Payne,[8] but a folk memory of it might have survived and its loss have become mythologised. The beginning of a new Millennium might be an appropriate time to lay to rest not only this possibility, but also the notion that our ceremonies, and the peculiar system of morality which they enshrine, have any lineal descent from, or direct connection with, English building construction work, at least before the sixteenth century.

To anyone who may advance the dogmatic thesis that our Working Tools, our Ashlars and our Lewis, for example, *must* prove our mediaeval operative descent, I can only quote the cautious admonition of Dr. Lawrence Mills:

> 'Where two things…are found to be alike, it is not necessary for us to assume that one of them is related to the other as cause is related to effect, not even when they have appeared at times closely near to each other. No resemblances, however close,

and no apparent connection, however positive, are in themselves an absolutely certain proof of causality, or even a proof of immediate identity of origin.'[9]

In order to prove any such direct descent it is essential to demonstrate a mechanism through which, step by step, the transmission took place.

To extrapolate backwards, to attempt to deduce from our present ritual ceremonial, what 'must have been' the situation on building sites in the Middle Ages, would be something less than a scholarly approach to historical research. One might as well attempt to derive the nature of pre-Christian ceremonies at Stonehenge from the proceedings of a modern Eisteddfod at Llangollen.

The purpose of this paper is to demonstrate, because in so many masonic circles such a demonstration still appears to be necessary, how mistaken is such an implicit approach. A picture emerges which differs considerably from that of operative Master Masons presiding even formally, still less ritually, over organised groups of craftsmen. It strongly indicates that the well-authenticated English seventeenth century Fellowship had little in common with mediaeval building operatives apart from its name, and that whatever 'secrets' its Fellows may have been said to have possessed must have been derived from sources other than the English operative building trade.

The Master Mason

Evidently if either our ceremonies or our secrets, whatever these may be, had been handed down from mediaeval craftsmen, the Master Masons would have had a pivotal role in this transmission. To demonstrate that any such activity on their part is, to say the least, highly improbable requires a somewhat detailed overview of the English building industry prior to the seventeenth century.

There are few contemporary records of the names of individual English expert craftsmen earlier than the middle of the twelfth century. The Abbey of St. Benet Holme in Norfolk was built in the first half of the eleventh century, but it is only in an account compiled 150 years after the event that Thuruerd and Edward are described as *edificatores huius ecclesiae*[10] without any further description of their activities. There is, however, a comprehensive contemporary account of the construction work which took place at the beginning of the twelfth century at the Abbey of Bury St. Edmund's, a monastic foundation which had been re-constituted in 1020 when Bishop Aelfwine replaced the secular clergy who were then installed with twenty monks from St. Benet Holme.[11] The memorials of the Abbey make it clear that the early twelfth century work was carried out by 'Master Hugh'. For example, it is recorded that:

> *'Iste Herveus frater Taleboti prioris, omnes expensas inversit fratri suo priori in scribenda magna bibliotheca et manu magistri Hugonis incomparibiliter fecit depingi.'*[12]

and:

> *'Crucem in choro et Mariam et Johannen per manus magistri Hugonis fecit insculpi.'*[13]

The account goes on to say that 'as he excelled all men, in this marvellous work he excelled even himself'.[14] In spite of his excellence not too much weight should be placed on Hugh being given the honorific *Magister*. It is evident that he was a skilled artisan rather than a supervisor or manager. When further construction work was necessary after a disastrous fire in *c.* 1150, the work was supervised and directed by Abbot Samson's Sacrist, Dominus Hugo, whose appellation appears clearly to distinguish him from the former *Magister*. Indeed, in the more extensive records of construction work which survive from periods later than the second half of the twelfth century, many prominent craftsmen are designated 'Master', but few of these skilled artificers appear to have held positions of authority. This is reflected in the not over-generous wage rates which were paid in respect of fabrications executed by the hands of the master-

craftsmen themselves, in which, like Hugh, they displayed the excellence of their manual rather than their supervisory skills.

Before the middle of the seventeenth century domestic buildings in English towns seldom included much stonework. The rapid spread of the Great Fire of London in 1666 largely resulted from most of the dwelling-houses, and even much of Old St. Paul's Cathedral itself, still being principally constructed of wood and other combustible materials. Throughout the Middle Ages in England small buildings were probably both designed and built by individual craftsmen, in many cases perhaps carpenters rather than stone-masons, with a few labouring helpers, although the records of this are virtually non-existent. But this was not the case when large stone built edifices, both lay and ecclesiastical, were erected. Almost without exception major structures in England were supervised by a superior class of 'Masters' under whose direction the master craftsmen, assisted by less skilled operatives, fabricated the elements of the final structure. These assistants were predominantly labourers. Knoop and Jones could find no references to mason's apprentices earlier than the Exeter Cathedral Fabric Rolls in 1382. They stated in this connection:

> 'None of the early building accounts of that period known to us – Vale Royal Abbey 1278–1280, Westminster Abbey 1292, Conway Castle 1302–1306, Caernarvon Castle 1316–1317 and Beaumaris Castle 1316–1317, 1319–1320 and 1330 – contain any reference to a mason's apprentice. The earliest reference we have traced relates to the 1380's; even during the fifteenth century the number of mason's apprentices seems to have been very small. Neither at London Bridge from 1404 – 1418 where 47 masons are named, nor at Eton College from 1442 – 1460 where 293 freemasons, 61 hardhewers and 90 rough masons or layers are named in the accounts, does the word 'apprentice' or its equivalent occur.'[15]

In another place these authorities concluded:

> 'If the craft in its heyday in the thirteenth, fourteenth and fifteenth centuries had to rely on apprentices for its future supply of skilled journeymen, the stone-building industry would never have expanded in the way it actually did.'[16]

Moreover, there is no contemporary evidence for the tradition that the operative master-craftsmen, however they themselves had acquired their undoubted manual skills in the absence of any recognised apprenticeship, presided in any formal way over coherent groups of workmen. The 'lodge' on an English mediaeval building site was little more than a workshop, and, perhaps a recreation room for the operatives; at some places it served in addition as a 'tracing shed' which at others was a separate structure. In Scotland, where building stone was generally more readily available, at least in the fifteenth and sixteenth centuries static territorial Lodges certainly existed, in the sense of corporate bodies of workmen each governed by its own statutes and formal regulations, but these were rarities in England. One has been identified at York Minster between 1352 and 1409, though this was hardly a self-governing body, its Rules being imposed by the Dean and Chapter. There was possibly another at Canterbury Cathedral twenty years later.[17] But it should be noted that in each case these bodies appear to have been concerned primarily with routine maintenance and upkeep rather than with major new construction.

Furthermore, the manner in which a labour force was recruited in England for a major stone built project militated against there being any formal organisation of workers on site. At the more important English building sites stone-workers and other craftsmen from many parts of the country, some far-distant, were present. As well as local men, voluntarily self employed, and those brought to the site by sub-contractors, many, almost certainly the majority at the larger buildings, were directed to the work through Impressment Orders sent to the Sheriffs of the Counties throughout the Kingdom. Between 1344 and 1459, 356 such Commissions were granted.[18] For example, for various Royal works:

> 'Forty masons were, in 1360, to be provided by each of the following counties: Kent, Essex, Hertfordshire, Gloucester, Wiltshire, Somerset and Dorset, Leicester and Warwick, Northamptonshire, Cambridge and Huntingdon, making 320 masons in all. In 1362 Derby and Lancashire were required to supply 24 masons each, Yorkshire, Salop and Devon to provide 60 each, and Hereford to send 40.'[19]

Evidently those on site could exercise no choice about those who were directed to work alongside them, whatever levels of skills the newcomers might have possessed – or lacked. Also, the composition of the labour-force was constantly changing. Masons from distant parts tended to drift back home, particularly if they were not paid regularly. When too few remained on site, a further Impressment Order was issued.

As an illustration of this, in February 1253 there were 326 workmen engaged in construction work at Westminster Abbey. This number had increased to 428 by the third week in June then steadily fell to no more than 100 in November. Of this total labour force there had been in February 143 stone-cutters, monumental masons and masons. Their number had fallen to 63 by the end of April, rising to a new peak in August, but steadily falling again to 46 by the end of the year.[20]

The reason for this fluctuation in numbers is complex and cannot be attributed solely to seasonal needs. It appears that during 1252 the craftsmen had little cause to place any great reliance on the integrity of their employers in those days. They did not receive their proper payments and as a result many returned home. On 25 November 1252 King Henry III instructed the Treasurer, Philip Lovell, and the Master of the Work, Edward of Westminster, to recall those who had left and to pay them out of Treasury funds. This instruction was not wholly successful in advancing the work as fast as the King wished. In 1253 he further instructed Edward of Westminster to put much of the work out to tender, with a resulting *decrease* in the number of direct workers recorded in the Fabric Rolls.[21]

The mingling of a minority of local workmen with a larger number of transients from distant parts, inevitably having different levels of skills in the absence of any formal qualifications, makes it difficult to envisage a close-knit and well-ordered fraternity of a 'Lodge' in anything resembling our sense of the word. At major sites in England there certainly was no possibility of an enduring membership of a corporate body.

It may be that by 1400 there were widespread national usages and 'custom and practice' among building craftsmen, and that these are recorded in the Regius Poem and in the Cooke MS. These documents, however, though full of moral precepts, contain little symbolism, and none based on masons' working tools.[22] Indeed there is no record or other evidence that the latter were moralised by freemasons, operative or speculative, before the eighteenth century.[23] However, the uniformity of wages and working conditions throughout England and Wales, at least in the fourteenth and later centuries, suggests that building construction work was subject to some controlling authority. The majority of important building projects, if not directly undertaken by command of the King, at least received Royal assent. (The so-called 'adulterine' castles, i.e. those built without regal sanction, were apt to be razed to the ground.) The virtual standardisation of payments and conditions of employment, for example, which of the Saints' days were to be observed as unpaid holidays, was more probably an imposition consequent on the appointment of successive 'King's Master Masons' rather than a negotiating process derived from a formal nation-wide organisation of craftsmen. The tradition of national assemblies of masons and other building operatives may well have been no more than a consequence of the powers given to the King's Master Masons and others to issue the Impressment Orders. For example, between 1360 and 1363 so many craftsmen were impressed to work at the building of Windsor Castle that a contemporary chronicler could write that William of Wykeham had assembled there all the masons and carpenters in England.[24]

It is also relevant to note that the Master Masons who were in overall charge of building projects in England in the Middle Ages had responsibilities far more extensive than the mere design and construction of the work:

> 'It is not always recognised that a Gothic Cathedral or an Edwardian castle, however they may differ as works of art, are alike the product of an organising and administrative capacity not less remarkable, if less obvious, than the aesthetic or strategical skill displayed in the decoration and erection of such buildings.'[25]

The logistic problem alone was formidable. Stone was seldom available in England at the building site itself. When Vale Royal Abbey was built, 'In three years from 1278 to 1281, precisely 35,448 cartloads of stone were taken from the quarry to the site, over a distance of five miles.'[26] Ten years later the construction of Beaumaris castle involved 'a labour force of 400 masons, 2,000 minor workmen, 200 quarrymen and 30 smiths and carpenters, together with a supply organisation of 100 carts, 60 wagons and 30 boats bringing stone and sea-coal to the site.'[27] As well as being given the necessary working instructions, this army of some 3,000 workmen had to be recruited, housed, fed and paid, and also appropriate sanitary arrangements had to be made if the work were not to be hampered by disease, at a bleak site on the south-east coast of the island of Anglesey. In addition to surmounting such difficulties, on many occasions the Master Builder had to handle the problem, not unknown to modern developers, of financing the project. As time went by, the ability successfully to discharge all these duties which frequently involved discussions with the highest authorities in the land, often with the King himself, ever more clearly differentiated the Master Builder from the manual master craftsman, and the former naturally expected, and received, a correspondingly more generous reward for his services.

Even as early as the first construction of Westminster Abbey in 1050–1060, it is probable that Godwin Gretsyd, apparently in charge of the whole project, belonged to a socio-economic class superior to that of even the most skilled site workers. The evidence is not conclusive, but it is said that Gretsyd (the 'Great Syd') was a sufficiently generous benefactor of Hyde Abbey in Winchester for him to be remembered, together with his wife Wendelburh, in the regular intercessions there. It also appears that Gretsyd was later prosperous enough to bequeath both land and houses as an endowment for Westminster Abbey itself.[28]

The employment of such superior supervisors had become commonplace by the second half of the twelfth century. Maurice, described both as *cementarius* and *ingeniator*, was in charge of work on behalf of the King at places as far separated as Newcastle upon Tyne and Dover; at the latter he was paid the unusually high salary of one shilling per day. Ailnoth the ingeniator (*obiit c.* 1197) similarly supervised Royal works at various widely separated locations, for example at Westminster, Windsor and Woodstock. (In modern texts *ingeniator* is frequently translated as 'engineer', but the wider interpretation 'ingenious man' or 'man of genius' is probably a more accurate interpretation, better describing the range of skills such an 'ingenious man' was called upon to display.[29]) Perhaps at Bury St. Edmund's, Abbot Samson would have done better to secure the services of an *ingeniator* instead of entrusting the oversight of the reconstruction work to his Sacristan, Hugo;[30] in 1210 the Abbot's great tower collapsed.

There were, in fact, at this time, both in England and in France, several men available whose management skills as well as their expertise in building design and construction were widely recognised. For example, when the Choir of Canterbury Cathedral was extensively damaged by fire in 1174, the monks, who vainly hoped that the structure could be repaired, were able to consult several expert advisers. While some agreed that the former building could be restored, after much heart-searching the monks took the advice of the Norman, William of Sens, to demolish the ruins and rebuild the Choir.[31] (William of Sens was not the same man as Archbishop William of Sens, previously Bishop of Chartres where he had been succeeded by the Englishman, John of Salisbury, the author of 'Polycraticus'. Archbishop William, the brother-in-law of King Louis VII of France, later became the Archbishop of Rheims.) In addition to carrying out the demolition of the Choir and designing its replacement, the responsibilities of William of Sens included not only procuring the necessary stone from Caen, but also, while

awaiting its arrival, designing and constructing the machinery required to unload it from the ships in which it was transported.[32] He then 'delivered also to the masons who were assembled, models for cutting the stone'.[33]

It was probably in 1178 that William of Sens was badly injured in a fall from the scaffolding. According to Gervase, the accident took place 'at the beginning of the fifth year', but there is some uncertainty as to the *terminus a quo* from which Gervase numbered his years.[34] After the Norman's accident 'William the Englishman' was appointed to succeed him. He was not content to do no more than implement and complete the designs of his conservative predecessor, but introduced his own innovations, combining both 'Gothic' and 'Norman' styles. Before going to work at Canterbury, William of Sens had earlier rebuilt the Cathedral at Sens after a similar disastrous fire, preserving its former purely Norman style. He had been selected by the monks of Canterbury, in spite of his professional assessment that the ruined Choir must be demolished, explicitly because he was conservative, and proposed to preserve as much as possible of the 'glorious Choir of Conrad'. It is, therefore, very improbable that Gothic features were introduced to England by William of Sens after first having been embodied by Suger in the Abbey of St. Denis, as some writers have suggested. Parker, for example took the contrary view, maintaining that those parts of the Abbey Church of St. Denis constructed during the time of Suger (1140–1145) are not Gothic, that those that are Gothic were not built until a century after Suger's death, and that 'the parts of Canterbury Cathedral which were built by William the Englishman are more advanced in style than those built by William of Sens'. He concludes that the former had no alternative but to complete the Choir in accordance with the plans of William of Sens, but that the 'Englishman' designed and built the transept and crypt 'with many of the mouldings and details almost pure Gothic'.[35] If this thesis is correct, it demonstrates that by the last quarter of the twelfth century, at least one English Master Builder was displaying the innovative skills which were to characterise English architecture at least up to the time of the Renaissance.

Be all that as it may, although very detailed accounts of the progress of the construction work at Bury St. Edmund's, at Canterbury and at the other contemporary sites have survived, there is not the slightest indication that any of the Master Builders, or indeed, any of the master craftsmen to whom they gave instructions, ever summoned or presided over an assembly of craftsmen, still less over a formal 'Lodge'.

The source of 'innovations' in western architecture has long been a matter of considerable dispute. In the Romanesque period in Germany:

> '…architectural planning, direction and supervision were almost exclusively the concern of the upper clergy, highly educated monks who had gathered a wealth of experience on journeys – often long ones – to the south and to Byzantium.'[36]

However, in spite of the vast amount of ecclesiastical construction being undertaken at this time, those in overall charge of design and building operations, both in England and in France, were predominantly laymen who, like William of Sens, did not necessarily work only within their own national frontiers. In 1258 work began on a metropolitan cathedral at Uppsala in Sweden under the direction of the Frenchman, Stephen de Bonneuil, who was accompanied there by his own stone-workers.[37] Another Frenchman, Matthew of Arras, built the Cathedral at Prague in Bohemia. In 1274 King Edward I of England persuaded James of St. George to leave the employ of Count Philip of Savoy to build, among other works, the castles on the Welsh Marches. With the interchange of ideas in which this transmigration inevitably resulted, it seems hardly necessary to postulate that a shadowy band of 'Comacine Monks' was responsible for the dissemination of new developments in architectural styles. Where these styles first originated is a different matter about which there has been acrimonious debate ever since Strzygowski published *Orient oder Rom?* at the beginning of the twentieth century.[38] Without presuming to evaluate his thesis, there can be little doubt that Byzantium, to which some of the German monks are presumed to have travelled, had by

this time become a melting pot for the synthesis of 'Roman', Hellenistic and even 'Muslim' styles, wherever it was from which the latter had been derived.[39]

But from whatever source new developments in architectural design may have reached Western Europe, by the middle of the thirteenth century the professional role of its exponents had become well recognised. In England, when John of Gloucester (*obiit* 1260) held the appointment of 'King's Master Mason', he was far form being the construction manager at a single site. He was in overall charge of the work at a variety of locations – Gloucester, Woodstock, London (both at Westminster and also at the Tower), Guildford, Winchester and Porchester – and usually at several of them simultaneously. It is a significant mark of his socio-economic status that both he and his wife Agnes received, twice-yearly, robes ornamented with 'the furs of good squirrels such as the Knights of the Household wear'. His close relationship with the king himself is indicated by the latter having apparently borrowed some of John's wine, returning five casks to him in 1256.[40]

The Architect (the word appears in a report of a thirteenth century meeting in Hereford Cathedral[41]) was now clearly differentiated from the manual worker who was master only of his own craft. The thirteenth century Dominican preacher, Nicholas de Biard, makes this clear when he said 'Master Masons with a rod, and gloves in their hands, say to the others "cut it for me this way", and labour not themselves; this is what many modern prelates do'.[42] Similarly there can be no doubt about the implication of the statement of Bishop Richard of Bury d'Aungerville when he wrote in the *Philobiblon* which he completed in January 1345:

> 'We who ought to be accounted master-builders in the science (*architectonici in scientiis*) and to rule all mechanics who are put under us (*subjecti mechanici*).'[43]

In England there was a succession of such Masters who were responsible both for designing buildings and also for themselves organising and supervising their construction. In addition, they frequently acted as, in effect, consulting architects at other sites. Some were formally appointed as 'The King's Master Mason', others were employed by Bishops, and several had, in addition, extensive private practices. Some were scions of armigerous families such as the Cumbrian de Raghtons, a family who held the Grand Serjeantry of keeping the King's Hawks in the forest of Carlisle from the middle of the twelfth century, and bore the arms, Sable a chevron argent between three quatrefoils pierced argent. Ivo de Raghton (the unusual Christian name had descended through at least three generations) is generally credited with much of the construction of York Minster under Archbishop Melton. He became a Freeman of York and in 1327 he was assessed as the third richest man in the Parish of Goodramgate.[44]

The East Anglian family of the Ramseys provided several skilled Master Masons who designed and supervised extensive construction work both in Norwich and London. Of these, William de Ramsey III was using a canting armorial seal in 1349 though there is no record of his having received a formal grant of arms. He had been master of the new work at St. Paul's Cathedral in 1332 and was in charge of repairs at the Tower of London in 1336. At the same time he undertook consultancy work at Lichfield Cathedral, where he was paid £1 for each visit together with 6s 8d for the travelling expenses of himself and his servants. The adoption of the Perpendicular style in England was largely due to William de Ramsey III. He was authorised to Impress masons to work at Windsor Castle in 1343–4 and at Westminster Palace in April 1346.[45]

Richard of Farleigh was a younger contemporary of William de Ramsey III. He was employed at several sites between 1330 and 1360, not only both at Reading and at Bath, but also at the same time being appointed Master Mason of Salisbury Cathedral where he is presumed to have been responsible for the great tower and spire. Subsequently, in 1352 he was appointed Master of Work at Exeter Cathedral.[46]

During the second half of the fourteenth century John Lewyn held the appointment of Principal Mason to Durham Cathedral and the County Palatine of Durham. Within this Palatinate he supervised work at Coldringham Priory, Bamburgh Castle (where,

regrettably, he was accused of diverting some of the construction funds for his own purposes) and Durham Castle, before receiving Royal Commissions to Impress masons to work at the castles of Roxborough and Carlisle. Before he retired he undertook work for several private clients, including Sir Richard le Scrope and John of Gaunt. John Lewyn was evidently well to do, being the proprietor of several country properties, which provided him with a considerable amount of wool, which he exported.[47]

Among other such prosperous Master Masons was the Bristol architect Nicholas Waleys. The bequests in his will after his death in 1403 included, *inter alia*, six shops and a hall.[48] His contemporary William de Wynford held a variety of supervisory appointments, frequently at more than one site at the same time. He was first *apparellator*, and then, jointly with John Sponlee, *ordinator* of the work at Windsor Castle where in 1362 he was commissioned to impress masons. Meanwhile he was appointed Master Mason at Wells Cathedral where his remuneration included a house in Byestewall Street at a nominal rent. At the same time he was continuing to work at Windsor, now with Henry Yeveley, whose work is too well known to require further comment here.[49] It is significant that each was at this time regarded as a member of the Royal Household with the rank of 'esquire of minor degree'. In 1372 King Edward III awarded William de Wynford a pension of £10 per annum, and the architect was then able to devote more time to his private practice, designing for William of Wykeham both New College in Oxford and Winchester College. After 1394 until his death in 1405, Wynford was principally concerned with the reconstruction of the nave of Winchester Cathedral in the Perpendicular style.[50]

John Clifford was another Master Mason who was associated with Henry Yeveley both at Windsor Castle and elsewhere. By the time of his death in 1417 he was a not inconsiderable landowner in Lambeth, Southwark, Bermondsey and Greenwich.[51] Robert Hulle, who succeeded Wynford as Master Mason at Winchester Cathedral was an equally prosperous architectural consultant[52] as was William Layer who carried out major building work at St. Edmundsbury before his death in 1444.[53] Another prominent Master Mason was Robert Couper who died in 1549. After working at Selby abbey at the request of the Abbot, he became a Freeman of York in 1442–3, subsequently being appointed Chief Mason to the city's corporation.[54]

Thomas Mapilton who died *c.* 1445 was an English Master builder whose talents appear to have been recognised in Europe as well as in his own country. In 1420 the Florentines decided to consult both Italian and foreign architects to advise Brunelleschi on the vaulting of the central space of the Duomo which was then under construction. At this time the English King Henry V had sent for Mapilton to come to France to construct fortifications with which to consolidate the English gains in Normandy against the advancing Burgundian, John the Fearless. There is strong presumptive evidence that when peace was signed in 1420, Mapilton was the English architect who took part in the consultations in Sta. Maria de Fiore. A year later Mapilton not only became the King's Master Mason, but also consultant architect at Canterbury Cathedral, subsequently undertaking work at, among other places, St. Edmundsbury, Portsmouth and Lambeth Palace.[55]

Another outstanding fifteenth century architect was Reginald Ely who for most of his life lived in Cambridge, where he initiated the building of King's College Chapel, the construction of which was considerably hindered because of the difficulty in obtaining the necessary funds during the Wars of the Roses. In 1471 Ely was commissioned to impress masons for work in spite of the difficulty in paying them their wages; Ely's own salary for the supervision of this work of £16.13.4d. per annum was continuously in arrears until his death in 1471. The difference in status between such a Master as Ely and the leading manual craftsmen is well illustrated from the record books of King's College which show that in the two years between 1459 and 1461 Ely was entertained by the Provost on no less than thirty occasions, and also by his close friendship with Andrew Doket, the principal founder and first President of Queen's College. In spite of his difficulty in obtaining his salary, Ely was wealthy enough to build an almshouse in

what is now Trinity Lane, and in his will he bequeathed an endowment sufficient to maintain three almsmen within it.[56]

Towards the end of the fifteenth century William Orchard, who was particularly highly regarded by his contemporaries, undertook several projects in the University of Oxford, first at Balliol College and then at Magdalen where he was Master of the work. He also obtained the leasehold of the quarries in Headington from which much of the stone for the building work in Oxford was taken. In 1502 he contracted to provide the stone for the Cistercian College of St. Bernard, the predecessor of St. John's College.[57]

Sixteenth century English architects of no less stature and social position include William Vertue and his associate Thomas Bertie. The latter was of sufficient social standing for his son Richard to marry the widow of Charles Brandon, Duke of Suffolk, and herself Baroness Willoughby de Eresby in her own right.[58] Sir Richard Lee, the first English architect to be knighted for his services, was a younger colleague of Bertie. Lee accompanied the Earl of Pembroke as his Trench Master during his campaign in the Low Countries in 1557, and was principally employed as a surveyor of military fortifications, but two years before his death in 1575 the Earl of Essex asked him to build a castle in Northern Ireland, and he also carried out civil construction work for Thomas Cromwell in the South of England.[59]

Bertie and Lee each benefited materially from the dissolution of the monasteries by King Henry VIII.[60] They were received in court circles as architects had been at least since the time of John of Gloucester. There is no evidence that skilled manual workers, even if they had had anything to communicate, had such contacts with the upper reaches of sixteenth century society in which noblemen and their protégés were indulging in wide ranging speculations. It is therefore relevant to enquire whether, in the course of their professional duties, these distinguished architects had acquired any knowledge, esoteric or otherwise, which might have interested the natural philosophers whose freedom to speculate had been considerably unfettered by the complementary influences of the Renaissance and the Reformation.

The Vitruvian Tradition

The earliest western architectural textbook is the ten-volume *De Architectura*, which was completed by Marcus Vitruvius in . *c*30 B.C.[61] The qualifications of an architect which Vitruvius sets out in his first volume differ little from those which, four centuries later, first Martianus Capella, and after him Boethius[62] were to characterise as the Seven Liberal Arts and Sciences. In the next eight volumes (the tenth deals solely with military engineering) Vitruvius sets out a detailed manual descriptive both of the whole range of building materials and of every element of building design and construction, in the course of which he justifies his preliminary statement:

> 'Since therefore so great a profession (*disciplina*) as this is adorned by, and abounds in, various and numerous accomplishments, I think only those persons can forthwith justly claim to be architects who from boyhood have mounted up the steps of these studies, and, being trained generally in the knowledge of learning and the arts, have reached the temple of architecture at the top.'

The only symbolism in *De Architectura* occurs in the third volume, but this is of considerable importance because of the renewed attention paid to the views of Vitruvius during the Renaissance. He notes that the proportions of the human body are such that, with arms and legs outstretched, they can be circumscribed both by a circle and by a square, the construction later referred to as 'Cosmic Man'. Vitruvius considers that because Nature has designed the human frame to exhibit such symmetry, it is only right that these proportions should be incorporated into the design of Temples.

Apart from this, Vitruvius is explicitly matter-of-fact. For example, while in the ninth volume he sets out the contemporary achievements of geometry (in our sense of the

word), when he follows this with a brief discourse about the nature of the Universe, he disclaims any pretensions to be an astrologer, stating his opinion that the consideration of such matters is best left to others.

Evidently Vitruvius himself was as accomplished a geometer as he insisted that an architect should be. He reproduced both Plato's construction for 'doubling' a square and also Euclid's 49th Proposition (the 'Theorem of Pythagoras'). He was sufficiently competent not only to set out but to compare and contrast the constructions of Archytas of Tarentum and of Erastothenes of Cyrene for 'doubling a cube', the latter perhaps the highpoint of Hellenic geometrical ingenuity, noting that each of these constructions involves incommensurables.[63] It is surprising, therefore, that Vitruvius nowhere refers to the construction of a pentagon, nor to the proportion, the derivation of which likewise involves incommensurables, which is commonly referred to as the 'Golden Section'. This also was a discovery of the Pythagorean School at Tarentum, if not of Pythagoras himself.[64] The pentagon or pentalpha derived from it was adopted as what nowadays would be described as the 'logo' of the School. The curious value of this ratio in simplifying the calculation of areas had to await the supersession of Roman numerals by Arabic ones and the adoption of the decimal system. Possibly Vitruvius had no wish to involve himself with the esoteric implications of the Pythagorean discovery.

Furthermore, Vitruvius was not an innovator. He worked for the Emperor Augustus who not only discouraged experiment, but who preferred marble as a construction material rather than the pre-cast cement blocks which had been used in Rome since the second century B.C. However, there was considerable architectural innovation during the reigns of Claudius and his successor Nero. By the end of the first century A.D. when first Trajan and then Hadrian had claimed the Imperial throne, Roman architecture was technically highly developed. Hadrian himself professed to be a competent architect and there is no reason to believe that he was not himself responsible for the general design of the Pantheon. To construct it 'he enrolled cohorts and centuries, on the model of the legions, of builders, geometers and architects and every sort of expert in construction or decoration.[65] Among the professional architects who served Hadrian were Severus, Rabinius and Apollodorus, the latter, according to Dio Cassio, erecting the great bridge over the River Danube with twenty piers of squared stone, 60 feet in width, rising to 150 feet above the foundations.[66] At this time association in social clubs and societies was forbidden, but the existence of 'Collegia' was exempt from this prohibition. These were not Trade Guilds, however, but, at least ostensibly, funerary clubs, formed for the purpose of burying the dead and subsequently honouring and perpetuating their memory. As such, they were quasi-religious in nature, which did not prevent their members indulging in festivities whenever opportunity offered.[67]

Not only did Roman architecture further develop during the following centuries, but by the time Alaric the Goth sacked Rome on 24 August 410 A.D., its traditions had spread widely throughout the provinces of Western Europe. The ensuing turbulence inhibited major building construction until it was revived in Carolingian and Capetian times. For several years castles and fortifications for the most part continued to be earthworks surmounted by wooden ramparts enclosing a single stone-built tower ('motte and bailey'), but in the first three years of the second millennium there was a great upsurge in ecclesiastical construction. The scale of this is well illustrated by Gimpel's statement that 'in three centuries – from 1050–1350 – several millions of tons of stone were quarried in France for the building of 80 Cathedrals, 500 large churches and some tens of thousands of parish churches.'[68]

While the more sophisticated techniques of the Roman architects had survived only by hearsay, the *De Architectura* of Vitruvius was available to the early mediaeval builders, and was, in fact, the only textbook at their disposal. In 840 A.D. Einhardt, the biographer of Charlemagne, was sufficiently acquainted with it to quote from Vitruvius' first volume in a letter to his son.[69] According to Lesser, 'Euclid was known, the theorem of Pythagoras practised and Vitruvius copied through the Middle Ages (but the lessons abstracted from that classic were certainly very different from the conclusions of the Renaissance architects)'.[70]

Rykwert states that not only were the manuscripts of *De Architectura* 'constantly copied, but the whole text was thoroughly revised in 1415'. However, he goes on to point out that 'It is now very difficult to assess what use the mediaeval architects had made of Vitruvius'.[71] *De Architectura* would have assisted little in the design of the structures of great height in vogue in the 'Gothic' period, and the consequent difficulty of piercing the walls to admit light to their interiors while retaining their load bearing strength. The geometric construction to 'double the square' was necessary, however, not only to proportionate the ground-plans, but also to align the taper of the increasingly fashionable Gothic pinnacles, however, as will be seen below, it is doubtful if the mediaeval architects obtained this directly from the writings of Vitruvius.

Little is certainly known about how during this period accomplished architects either in England or in France acquired the professionalism which they afterwards exhibited. One thirteenth century architect, Villars de Honnecourt ('Wilars de Honecourt') is known to have travelled widely to study both architectural design and building technique, and also the mechanical devices then used in constructional work. In this connection, the problem presented by, for example, raising a square oak beam, three feet in cross-section, and forty or more feet in length should not be under-estimated. Villars recorded in a sketch-book all that he had seen in his travels.[72] Evidently he had set out to educate himself, wittingly or unwittingly, somewhat in the Vitruvian manner, though there is not the slightest indication that he made a formal *Tour de France*.

De Honnecourt considered that an architect should be able to draw artistically as well as accurately; his sketch-book is headed *Incipit materia porturature*. He detected a geometrical construction underlying living matter as well as lifeless objects; four of his folios demonstrate how men, animals and birds can be delineated in this way. He was indeed an accomplished geometer, however he had acquired this skill; Plate XXX in his sketch-book shows how a human face, an angle and a turret of a building can all be derived from a basic pentagon, but without any indication of how such a regular figure can be constructed. In common with Vitruvius, de Honnecourt appears to be unaware of the Pythagorean method and thereby of the Golden Section. It is relevant to note that de Honnecourt evidently did not consider any part of architectural design or methods to be a secret, esoteric or otherwise, unless he had adopted the principle *ars est celare artem*; he explicitly addresses his manuscript 'to all who will use the devices found in this book' although Shelby has pointed out that some of the drawings seem to require additional oral explanation.[73]

It would be unreasonable not to suppose that individual craftsmen, then as now, in addition to their general skills had their own 'tricks of the trade', and that they would have jealously guarded such practical 'know-how'. It is extremely doubtful, at least in England and in France, whether any such knowledge was regarded as a specific 'secret', either to be generally held within, but to be confined to, a particular craft, or, *a fortiori*, to be concealed in any esoteric or mystical way. There is no indication that the Regulations promulgated in Paris in 1268 by the Provost of Merchants, Étienne Boileau, were in any way concerned with the preservation of trade secrets. By this time, craftsmanship in each of a variety of trades had become specialised. A Gild Master was increasingly dependent on components or raw material fabricated or provided by operative members of other Gilds over whom he had no direct control. To maintain standards it was essential not only to ensure the professional competence of individual craftsmen, but also to be able to rely on the personal commercial morality of each individual in every trade so that not only would he not himself turn out scamped work, but also that he would not 'cover up' for those employed on earlier stages of the fabrication either in his own or in another Gild. In the religious climate of the time the surest way to achieve this was to bind each workman by an oath which he believed would place his immortal soul in danger if he violated it. Whilst honest service was thus made a matter of religion and salvation, this was a commercial morality and there is no indication that the Regulations were concerned with the preservation of trade secrets or with personal conduct outside the work place.

The Statutes of 101 trades were recorded in the *Livre des Métiers*. The forty-eighth *Titre*

sets out the Regulations *Des Maçons, des Tailleurs de Pierre, des Plastres et des Morteliers*. The Master of the Gild, Guillaume de Saint Patu, had been appointed by the King; the only way in which the Gild was exceptional was that in no other was the headship a Royal appointment. The oath taking started with the Gild-Master himself. As an illustration of how the duty of an individual craftsman towards his employer was conceived, the Twelfth Article of the *Titre* states, *inter alia*, 'When plasterers send plaster for any man to use, the mason who works for the man to whom the plaster is sent, must ensure, on his oath, that the measure of the plaster is good and true, and if he has any doubts about the measure, he must weigh it himself, or have it weighed in his presence'.[74]

When almost a century later the London Masons' Regulations were composed in 1356, they seem to have pre-dated the institution of a Mason's Gild which could enforce them. They can have enshrined no more than a pious hope – as Knoop and Jones express it, to have been only 'a statement of what was desirable, rather than a statement of actual practice'.[75] The impression to be gained from later Ordinances, promulgated after the formation of the London Company of Masons (for example those of 1481, 1521 etc.), and from the earliest manuscript records of the Company[76] is that their principal objectives were to preserve the Company's monopoly on the one hand, and on the other to prevent unfair competition among its members which would have resulted from sub-standard work. A typical example of this is the twelfth article of the Company's Ordinance of '21° Ed:4th' of 1481. It empowers 'The Wardens with ye Mayor's Officer with them to search out all works and things belonging to the Craft and Complaints of all defects to the Chamberlain for him to punish'. That there was nothing covert about this inspection is demonstrated by the presence of 'ye Mayor's Officer' in the search party. Similarly the Ordinance of 'An° 1° Hen.8' (1509/10), after laying down rigorous minimum specifications for various types of stone and stone-work, continues '10thly The Wardens and Masons to have the Search of Stone with plumb, rule, Levell, compass and Square'. While there is no binding by oaths as in the Parisian Regulations, there is most specifically no indication of secrets, professional or otherwise, in all the documents studied.

The situation may have been otherwise in Germany, but whether or not the Steinmetzen had secrets which were in any sense esoteric, senior Master Masons from several German cities met together in Regensburg in 1459 and composed Statutes which they intended to be generally enforced. The major preoccupation of the assembled Masters seems to have been the practical matter of preventing the disclosure of the method of making an elevation from a plan to anyone who was not a member of their craft. There was therefore a considerable furore when some thirty years later, in 1486, one of their own number, Wenzel Roriczer, possibly with the approval of the Bishop of Regensburg[77], published a book which was considered to divulge at least some of these so-called secrets. Some were empirical, rather than rigorous. For example, Roriczer provided a simple construction for dividing a circle into seven equal segments, which is no more than a close approximation. The greatest ill feeling was generated by Roriczer's revelation of the method of erecting a pinnacle with the correct taper on a pre-determined base. This requires the geometric construction of a sequence of squares of successively diminishing size. Roriczer's method owes nothing to Vitruvius, but it is very similar to, if not actually copied from, that in the notebook of Villars de Honnecourt.[78] That so much indignation was aroused by Roriczer's disclosures of what were in effect no more than moderately sophisticated 'tricks of the trade' strongly indicates that it was knowledge of this kind rather than any underlying mystical system which Roriczer's fellow-Masters were so anxious to preserve.

Sacred Geometry In The Middle Ages

Thus far it has not been possible to find any evidence that esoteric secrets were possessed by mediaeval master-operatives, nor that the master-builders for whom they worked were

concerned with anything more arcane than preserving both the integrity of the construction trade and their monopoly in exercising it. Neither is there any evidence, at least in England, of any widespread formal on-site organisation within which secrets, esoteric or practical, could have been communicated even if they had existed. However, there still remains the possibility that there was a repository of symbolic knowledge which was available to the master-builders or architects even though there is likewise no trustworthy contemporary evidence of its existence. But if such men had become aware, from whatever source they might have acquired the knowledge, that there was a tradition that something more than the manual task of placing stone on stone underlay, in particular, sacred buildings, then some trace of this concept might be identifiable in their completed designs. In order to understand how this might have come about, it is important to appreciate that England was not an illiterate backwater up to the middle of the fifteenth century before the cultural revolution which we know as the Renaissance. Although monkish learning which had flourished in early Anglo Saxon times had virtually ceased to exist by 940 A.D. in the wake of the Scandinavian invasions, after the Norman Conquest there had been increasingly rapid dissemination of the knowledge of the Seven Liberal Arts and Sciences – the *Quadrivium* as well as the *Trivium*. The Cathedral Schools to which the scholars returned after spending time at the European Universities were not the only source of this. Some of those appointed to English Sees and Abbacies were from an early date European scholars of distinction. Some of the earliest of these appointments were of Lotharingians, at a time when Lotharingia was one of the hubs of Western learning. In 1033 the Lotharingians Herman and Ducduc became respectively the Bishops of Ramsey and Exeter, the latter the first of a succession of European scholars to settle in the West Country. On 15 April 1061 two further Lotharingians, Walter and Gisa, were consecrated by Pope Nicholas II to English Sees, Walter to Hereford and Gisa to Wells. In 1120 the Lotharingian Prior Walcher of Malvern, assisted by a converted Spanish Jew, Petrus Alphonsus, revised astronomical tables which he had earlier composed, expressing them in the Babylonian-derived Arabic scale of 60 for minutes and seconds of arc as is used today, and using transliterated Arabic technical terms.[79] Soon after this Adelard of Bath returned to England after long sojourns first in Sicily and then in Spain. Thereafter working principally in Bristol, but with visits to Hereford, Adelard spent the rest of his life translating texts from both Greek and Arabic, including many of the works of Euclid. It has been pointed out that it may be more than a coincidence that the availability of Euclid's *Elements* in Adelard's translation was quickly followed by the technical advances which led to the Gothic period of architecture in England.[80] It was Hereford which became the centre of Arabic, and through Arabic, Hellenic, learning in England in the twelfth and thirteenth centuries. Among those associated with its Cathedral School were Daniel Morley[81] and 'Rogerus Compotista' who can probably be identified with Roger of Hereford who wrote *Theoretica Planetarum*.[82] By this time the trigonometrical ratios sine, cosine and tangent, as well as the use of logarithms were well known to English scholars.

These mathematical developments could not have failed to interest the architects engaged in structural calculations had they been aware of them. While in the thirteenth and fourteenth centuries much construction work was directed to stone-built castles and fortifications, ecclesiastical buildings were the largest and most complex structures being erected in Western Europe. The consequent involvement of the architects with the clerical establishment might have led to their being aware of academic advances being studied in the Cathedral Schools, particularly in the West Country. These included not only mathematics, but also philosophy and metaphysics, perhaps even hermetic studies, brought to England by scholars from abroad. It is relevant, therefore, to examine the symbolism exhibited in the designs of pre-Renaissance buildings to see if any indications of esoteric imagery can be identified. If such features were embodied, they would not, of course, necessarily have been the inventions of the architects. They could have been included at the behest of their ecclesiastical patrons.

From its earliest days the Christian Church seldom neglected any opportunity to

symbolise both major and minor aspects of the Faith for the edification of its mainly illiterate flock. Solomonic symbolism was present at least to the end of the seventeenth century.[83] The crypt of St. Wilfrid's Church at Hexham was said by Eddi to have been built 'according to the wisdom of Solomon'.[84] The throne of King Charles of France (in 772 A.D. not yet 'the Great') at Aix-la-Chapelle 'was built to the measurements of King Solomon's Throne'.[85] But whereas King Solomon, his Temple and his Throne, otherwise figure prominently in literary allusions and allegories, the symbolic geometry of mediaeval churches and cathedrals generally embodied a simpler pattern.

In spite of the availability of *De Architectura*, there was nothing Vitruvian about the most commonly used ecclesiastical ground-plans. It is true that Templar churches were frequently circular, but this design had a fancied reference to the Church of the Holy Sepulchre in Jerusalem and owed nothing to 'Cosmic Man'. Throughout Western Europe Cathedrals and monastic churches were almost universally erected on a rectilinear ground-plan.[86] Generally this was based on the readily suggested symbolism of the Latin Cross. In these buildings there was typically a High Altar in the Eastern Apse, though not necessarily at its apex. There were subsidiary chapels in an ambulatory behind the High Altar. Within the outline of the Latin Cross, the 'sacred geometry' was based on straight-sided polygons – squares and triangles together with hexagons and octagons and their associated hexagrams and octagrams. An early example of this is the Cathedral at Florence which is:

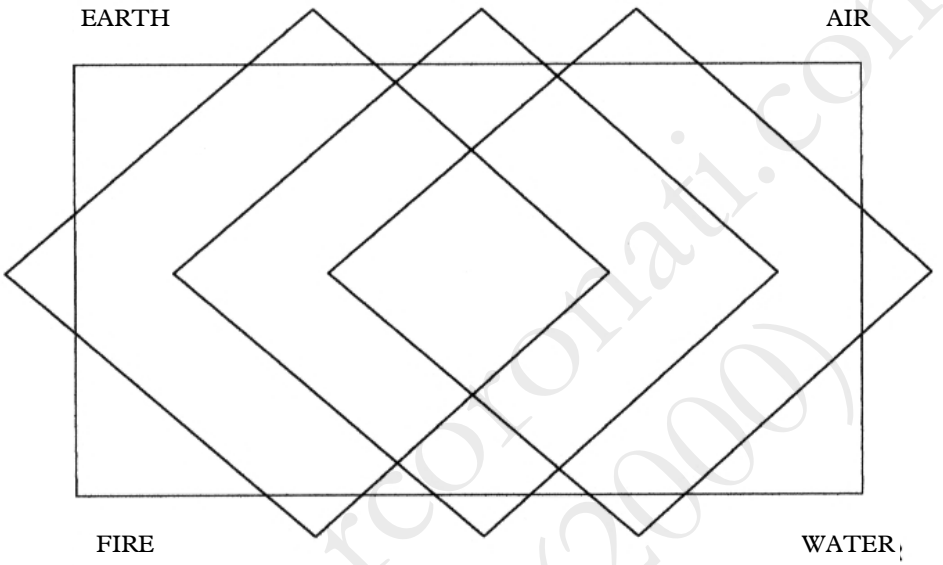
> '…organised on three squares or octagrams, one for the dome, two for the basilica. Here then we find for the first time a chain of several squares, amplified into octagrams, to define the geometric skeleton of a longitudinal church.'[87]

An octagon (and thence an octagram) can readily be geometrically constructed by superimposing one square, rotated through half a right-angle, upon another of the same dimensions, a process requiring little geometric skill. Its symbolic importance was that, whereas seven was the 'number' associated with the Old Covenant (for example, the seven-branched candlestick in the Temple), eight was considered to be that of the New Covenant and of the promise of Salvation. For example, Christ had risen on the 'eighth' day of the week, and there were eight Benedictions in the Sermon on the Mount.[88] Of particular and enduring allegorical importance was Noah's Flood, which was considered to be a prototype of the Resurrection, and from which eight persons (Noah, his three sons, and their respective wives) were saved in the Ark.[89]

The simple ground-plan based on three squares and their derivatives was later elaborated into the more complex symbolism of the dodecaid. This involved a figure in which three larger squares overlapped so as to demarcate a small central square, the whole area of which was common to all three. This was a symbol of the Trinity, the Three-in-One. The central square was then framed by a rectangle containing portions of each of the three larger squares. The four corners of the rectangle were equated with the four elements (earth, water, fire and air) so that the whole ground-plan symbolised Creation permeated by the three squares emblematic of the Godhead.[90]

The relative dimensions of mediaeval churches constructed upon one or other of the variations of this ground-plan are generally based on simple ratios, the values of which do not appear to indicate anything symbolically, still less mystically, significant. For example in France the first church built at the Abbey of St. Denis in 775 A.D. incorporated such simple ratios as 1:1, 2:1, 3:1, 3:2, and 10:1.[91] The same applies to other churches built in Eastern France and in the Rhine Valley between 750 and 950 A.D.[92] A similar simplicity is to be found in the majority of English mediaeval churches, although at some of those attached to monastic foundations the relative dimensions were evidently constrained by the lie of the ground. To quote only a few examples, at Tintern Abbey the ratio of the overall length of the nave to the width across the transepts is 3:2, while at Rievaulx this is 3:1 as is also the case (excluding the corona) at Canterbury Cathedral. Chester Cathedral has been much modified, but the ratio of the aisle length to the width of the original south transept is 4:1.[93]

Diagram of the Dodecaid



None of this appears to indicate any attempt to conceal any secret matter within the design of ecclesiastical buildings. The intention was to reveal Divine truths rather than to conceal any deeper mystery. To intend otherwise would have been self defeating; the Catholic Church, then as now, was Apostolic without any taint of Gnostic heresy.
So far as further symbolism is concerned, it has been said that the Gothic front of the early thirteenth century Cathedral at Amiens is a 'symbolization of Universal or Cosmic Man, of whom Christ was an Incarnation'.[94] The evidence for this is singularly unconvincing. It was only in the second half of the fifteenth century that this aspect of the writings of Vitruvius was explicitly given a particular prominence and that a new Cosmic symbolism replaced the simplistic polygons of the Middle Ages. If earlier architects were aware of esoteric 'secrets', they were careful not to reveal them in their designs.

The Neo-Platonic Revival

Leon Battisti Alberti wrote the major part of his architectural text-book *De re Aedificatoria* between 1443 and 1452.[95] As Vitruvius had done, Alberti composed his work in ten 'books'. In his seventh 'book' Alberti discusses the ground-plan of churches (*templi*). He returned to the Vitruvian idea that the circle is the basic natural form, maintaining that this is demonstrated by the shape of tree-trunks, birds' nests and even the spherical earth itself. He points out that a variety of polygons can be described within a circle; in his view these are generated from the circle itself which remains the purest form. He concluded that it was only when a building was based upon a circular ground-plan that there could be achieved the inevitable correspondence of each dimension to form a structure with an organic geometry which would provide the beauty most pleasing to God.
Alberti develops the theme of all-pervading dimensional harmony in his ninth Book.

He is not concerned so much with the visible effect as with the geometric integrity of the total structure.

> 'It is obvious that such mathematical relations between plan and section cannot be correctly perceived when one walks about in a building. Alberti knew that, of course, quite as well as we do. We must therefore conclude that the harmonic perfection of the geometrical scheme represents an absolute value, independent of our subjective and transitory perception. And it will be seen later that for Alberti – as for other Renaissance artists – this man-created harmony was a visible echo of a celestial and universally valid harmony.'[96]

Alberti's views received a considerable impetus when some ten years after he had completed *De re Aedificatoria* the complete Greek texts of the works of Plato were brought to Florence by the refugee Byzantine scholars who followed Gemistus Pletho to the city. Even then these were seen as being of less importance than the *Corpus Hermeticum* of which fourteen texts were obtained from Macedonia at about the same time by one of the agents of Cosimo de Medici. Indeed, Cosimo instructed Marsilio Ficino to translate the latter before commencing his translation of the Platonic texts.[97] However, within a few years the works of Plato were available to the Florentines; of these, it was the *Timaeus*, and to a lesser extent the *Republic*, which had the greatest influence on architectural concepts.

De re Aedificatoria had originally circulated only in manuscript, but the printed edition in 1485[98] was soon followed by an outpouring of other printed works expounding the application of neo-Platonic principles to architectural design. Among Alberti's academic contemporaries and successors in Cinquecento Italy there were soon few dissentients to the Cosmic concept, although it eliminated the Eastern apse with the corollary that the principal altar should be centrally placed. Such a position for the latter gave rise both to theological and liturgical difficulties, but in spite of criticisms from traditionalists, these were over-ridden by the neo-Platonic enthusiasm of its exponents. The Cosmic architectural concept was endorsed by Filarete, the protégé first of Francesco Sforza, and, after the latter's death, of Piero de Medici. Plato became one of the ancient philosophers who were accorded the status of 'Christians before Christ'. Ficino, a canon of Fiesole as well as the translator of the Platonic corpus, preached on the *Timaeus* in the Church of the Angels, for, he said, 'We would contemplate Divine truth in this abode of the Angels'.[99]

The neo-Platonic framework incorporated the Vitruvian concept of Cosmic proportion. This was explicitly set out by Alberti's friend, the mathematician Fra Luca Pacioli, in his book *De Divina Proportione*, the illustrations for which were made by Leonardo da Vinci, who also drew one of the best known figures of 'Cosmic Man', incidentally with his left foot in the hollow of his right. Leonardo, of course, is well known for left-handed drawings which are mirror-images. Pacioli makes unequivocally clear his contention that God has revealed the innermost secrets of Nature in the measurements and proportions of the human body. In his later work, *Summa de Arithmetica*, published in Venice in 1494, Pacioli further emphasises that the Divine ministrations within a Church are of little value if the building has not been constructed with the correct proportions (*con debita proportione*).[100]

An equally influential figure was the Franciscan Venetian Friar Francesco Giorgio[101] who published in 1525 *De harmonia mundi totius*. He makes clear his commitment both to Vitruvian and to Platonic values by entitling one chapter 'Why man in the figure of the circle is an image of the world'.[102] In 1535 the construction of the Church of S. Francesco della Vigna at Venice was delayed by differences of opinion about the propriety of the proportions in the plan prepared by Jacopo Sansovino. It was to Francesco Giorgio that the Doge, Andrea Gitta, who had himself laid the foundation stone a year earlier, turned to provide a memorandum setting out the rationale underlying the relative dimensions of the planned structure.

Giorgio was careful to start his exposition by quoting Biblical precedent for the

design. He wrote 'When God wished to instruct Moses concerning the form and proportion of the tabernacle which he had to build, He gave him as a model the fabric of the world and said (as is written in Exodus XXV) "And look that thou make them after their pattern which was showed thee in the mount." By this pattern was meant, according to all interpreters, the fabric of the world.'[103] But for the 'fabric of the world' Giorgio goes not to the Torah but to the *Timaeus*.[104]

Giorgio justified the design by pursuing the Platonic description of world-structure in considerable detail. He was particularly concerned to emphasise the Platonic concept that the Divine proportions had the same mathematical basis as musical harmonies. In his 'memorandum' justifying Sansovino's design he explicitly sets out its musical equivalence. He explains the nave-width in terms of the diapente (the 'fifth') and that the addition of the choir 'will form a quintuple proportion in relation to the width: which gives it the most beautiful harmony of a bisdiapason and diapente'.[105] As Taylor points out, Alberti himself had been 'a lettered and harmonious person, definitely considering architecture as visible music'.[106]

By the time that a Vitruvian Academy was founded in 1542 neo-Platonism was seen neither as heretical nor as a reversion to paganism. On the contrary, it was regarded as providing an insight into the 'mind' of the Christian Creator. By the middle of the sixteenth century the macrocosm was firmly embedded in the microcosm, and *Divina Proportione,* sometimes loosely translated as 'Sacred Geometry', had become the predominant feature of Renaissance architecture.

One curious consequence of this metaphysical development was further to separate the master-builder, the architect, from the craftsman. In the preface to *De re Adificatoria* Alberti himself had written 'For it is not a Carpenter or Joiner that I thus rank with the greatest Masters in other Sciences; the manual Operative being no more than an Instrument to the Architect'. Shelby has pointed out that the increasing number of text-books in effect transformed architecture into an academic profession, severed from the necessity for its exponents to have practical operative experience.[107]

However, the most influential of the Renaissance architects who absorbed the neo-Platonic tradition, Andrea di Pietro della Gondola, who had been born in Padua in 1508, had originally been apprenticed to a stone-carver in Padua before breaking his contract in 1524 and going to Vicenza where he worked as an assistant to the carvers Giovanni da Pedemuro and Girolamo Pittoni. In 1538 he was commissioned to work at Cricoli on some additions to the Villa of Count Giangorgio, who gave him the name of Palladio by which he was ever afterward known. He returned to Padua with the Count, and came under the influence of the designers Alvise Cornaro and Sebastiano Serlio. As a result he broke away from Alberti and the Vitruvian tradition, and developed his own distinctive style, based on the neo-Platonic ratios, after travelling widely in Naples, Piedmont and Provence.

On his return, Palladio was caught up in the academic movement which was sweeping continental Europe:

> 'An academy, which in Trissino's time had been a regular gathering of literate friends in a villa garden, rapidly evolved into an elaborate and official institution for sharing and propagating learning. The Academia Olimpica, one of the earliest, was chartered in Vicenza in 1555 by a group of twenty-one local scholars and one artist, Palladio, for the cultivation of the arts and sciences, but especially of mathematics "the true ornament of all who profess noble and virtuous spirits" . A year later, the more prosperous nobles, including most of Palladio's patrons formed another, exclusively aristocratic, Academia dei Constanti, to foster learning, but also to sustain the chivalric tradition in part by staging tournaments and other courtly functions.'[108]

Ackerman further points out that this was a symptom of 'a new social conformation in which technicians, scholars and artists emerged from the classrooms and shops to become gentlemen, or at least courtiers, while gentlemen put off their armour and

merchants abandoned the sea to cultivate the arts with the help of the parvenu experts'.[109]

In 1570 Palladio published his four-volume text-book of architecture *Quattri Libri di Architectura* in which he emphasised the dominating influence which he considered that the Platonic proportions should have on architectural design. Palladio worked closely with his aristocratic patron, Daniele Barbaro for whom he built the Villa Maser. Some commentators have considered that the *De Architectura* of Vitruvius did not set out a true theory of proportion, but Barbaro devoted much of his commentary on Vitruvius, *ad Vitruvium*, to demonstrating that this perception was incorrect. But Palladio considerably extended the Vitruvian concept of symmetry. Barbaro had written:

> 'Symmetry is the beauty of order as 'eurythmia' is the beauty of disposition. It is not enough to order the measurements singly one after the other, but it is necessary that those measurements be related to each other, that is to say, there must be some proportion between them.'[110]

This was certainly the stand-point from which Palladio developed his designs, but the major importance of this approach was that the architect, the designer, the artist no longer had to rely on his own innate sense of what was appropriate in order to reproduce Divine perfection. In the preceding centuries of the Christian era, Cosmic speculations had been essentially qualitative. Platonism allied to Pythagoreanism, now provided a quantitative certainty on which to base the ever-widening philosophical and metaphysical speculations of the age. Neo-Platonism was essentially mathematical, and Geometry was considered to be the tangible perfection of mathematics, the truths of which could be spatially demonstrated by architecture. It is little wonder, therefore, that the original title-page of Palladio's Four Books depicts two allegorical figures, those of 'Geometry' and of 'Architecture', each pointing upwards to the central figure of the 'Queen of Virtue' enthroned above them.

In the Palladian tradition the mathematical, and thereby the architectural, proportions which were thus 'virtuous' were selected to reflect the harmony of the universe on the basis of Timaean and Pythagorean numerology. In 1573 Silvio Belli, a fellow-member with Palladio of the Academia Olimpica, published *Della Proportione et Proportionalita*, extending Palladio's relativities to include the vertical. 'Proportion' was considered to be the virtuous relation of two dimensions, such as, for example, the length and breadth of a room, or the length and height of a wall. 'Proportionality' extended this concept into three dimensions, so that the dimensions of the walls of a room could be integrated with its floor-plan. There was more than one method of achieving this; the simpler way was for the proportions of the dimensions to be in a 'geometric' progression. Even more virtuous was the 'harmonic progression,[111] which was closely related to musical theory. That numerical equivalents of the terms in *musical* harmonies could, when applied to spatial relationships in architecture, make *visual* harmonies, seemed to Palladio and his contemporaries to indicate a universal 'Design', and to validate their philosophy, and their insistence on mathematics as a fundamental discipline.[112] A building designed on these principles was intended to be a three-dimensional analogue of the cosmic structure. As has already been pointed out, this integration of cosmic ratios was not immediately apparent even to the careful observer; while such structures generally pleased the eye, their intrinsic 'beauty' lay principally in the mathematical relationships. There was no deliberate attempt to conceal the meaning of these; indeed, they were explained and analysed in dozens of treatises. There was nothing remotely 'secret' about the designs.

Geometry and the Fellowship

While neo-Platonism was originally adopted to provide a more satisfactory cosmic reference for the design of sacred buildings, its effect on philosophical speculation in general was as far-reaching as it was on architecture in particular. Throughout Christian

Europe many influential speculative philosophers accepted the neo-Platonic model which had been developed by the mathematical architects. Its implications were amalgamated with other systems by means of which men had earlier not only attempted to rationalise the secrets of the Universe, but had also sought Divine revelation in order to probe them more deeply. These systems did not only include the well-established topics of astrology and alchemy which were found to fit comfortably into the neo-Platonic scheme of things. Marsilio Ficino, the translator of the Hermetic tracts as well as of the works of Plato, incorporated into neo-Platonism not only Hermeticism but also the Art of Ramon Lull. To this heady mixture Pico de Mirandola added the Christianised form of the pre-Lurianic Spanish Cabala.[113] Its particular importance to the Christian coherence of the whole system was Pico's demonstration, later developed by Reuchlin, that the introduction of the Hebrew letter ש 'Shin' into the Tetragrammaton reconciled the Jewish Cabala with the Christian Incarnation.[114] It is possible that the *De Harmonia Mundi Totius* of Friar Giorgio significantly influenced in this connection Renaissance thinkers in England and France as well as in Italy.

Before the end of the sixteenth century, the far reaching implications of the system had become too much for the ecclesiastical authorities in Rome. Its exponents were repressed, the Hermeticist Giordano Bruno, for example, being burnt at the stake on his return to Rome in February 1600. More tolerance was shown in England than in some of its Continental neighbours, but by the end of the sixteenth century counter-influences had gained ground even there. When in 1582 John Dee had left England to travel in Europe, his reputation both at Court and in academic circles had been second to none. When he returned seven years later, he found the intellectual climate considerably changed. Even in the coteries over which such noblemen as Henry Percy, the fifth Earl of Northumberland, presided, untrammelled free-thinking was not universally applauded by the outside world, as Northumberland himself was to discover at Cerne Abbas, and as was later brought home to Dee by the mob at Mortlake. Dee himself saw nothing incompatible with Christianity in his attempts to conjure spirits,[115] but this, and what was regarded as the even blacker art of necromancy – the attempt to obtain secret information by raising a corpse – were politically dangerous when King James the Sixth and First ascended the Throne with his almost pathological hatred of witchcraft.

But the other major achievement of the neo-Platonic revival was to stimulate the widespread interest in the natural sciences, and specifically their mathematical bases, which became one of the outstanding characteristics of the Elizabethan age in England. It resulted in the publication of an extraordinary number of scientific works, so that 'over ten per cent of the books listed in the *Short Title Catalogue of English Books, 1475–1640* (London, 1926) are works on the natural sciences'.[116] So many of these books would not have been published if there had not been a market for them, and they were not studied only by academics at the Universities. Francis Johnson points out that 'interest in all phases of science was widespread in Elizabethan England, extending to all the literate classes. The number and variety of popular scientific books printed in the vernacular during this period provide one of the most significant phenomena of the age. Almost ninety per cent of the scientific works in England were published in the vernacular. So far as I can determine, no other country can claim nearly so high a proportion for the period 1500–1640'.[117] It must be remembered that the numbers of the 'literate classes' had considerably increased as a result of the foundation of so many grammar schools during and after the reign of King Edward VI.

Many of these works show considerable Platonic influences. One example among many is the *Geometrical…Treatise…* by Thomas Digges, to which he appended 'A Mathematicall Discourse of the 5 Platonicall Solides, and their Metamorphosis into 5 other compound rare Geometricall bodies'.[118] Such books were far from being 'elementary'. Digges sets out a rigorous method for the construction of a regular pentagon, essentially involving the 'Golden Section' but without referring to it as such, and he also comments on 'irrational' numbers, making one of the earliest uses of the term 'surd' to describe their nature.[119]

Degree courses at the Universities had, broadly speaking, evolved from the study of the Seven Liberal Arts and Sciences as set out in the Trivium and the Quadrivium. It is, therefore, remarkable that although both Geometria and Astronomia were included in the Quadrivium, in the early seventeenth century neither at Oxford nor at Cambridge did geometry and astronomy feature in the B.A. Course, and only superficial knowledge of either was required before proceeding to the M.A. Astrology was, however, still part of the School of Medicine, and its graduates, of whom Robert Fludd was one,[120] had therefore to be capable of carrying out astronomical calculations. Those who wished to learn more of 'those Pythagorean doctrines which emphasised mathematics as the key to the secrets of philosophy'[121] therefore had to consult savants such as John Dee, Robert Recorde and Henry Savile who lectured outside the Universities; there were no University Chairs professing such topics until Savile founded his Professorships of Astronomy and Geometry at Oxford in 1619.[122]

Thomas Harriot (his name has been variously spelt, the n and now) was the most distinguished of the English mathematicians of his day. Having graduated from Oxford as a B.A. in 1579, he entered the household of Walter Raleigh as his mathematical tutor. Harriot's place as a member of Raleigh's circle of friends and as the leader in the scientific experiments and astronomical observations in which this group occasionally indulged was a matter of common knowledge among his contemporaries'.[123] Indeed, Harriot's attainments were such that the great Johannes Kepler[124] esteemed Harriot as his intellectual equal both as a mathematician and as an astronomer, as can be seen from their correspondence.[125] Neither pursued his studies out of no more than intellectual curiosity. Each always had in mind the goal of bringing mankind closer to an understanding of the wonderful works of the Creator, and thereby of man's place in the Cosmos. Kepler, for example, wrote:

> 'Geometry is one and eternal, a reflection out of the mind of God. That mankind shares in it is one of the reasons to call man an image of God.'[126]

It was the eternal quantitative veracity of mathematics, specifically geometry, without qualitative mystic speculation, which inspired his work. He had little sympathy with the theosophists, characterising the disciples of the Rosicrucians as an 'unbalanced swarm of mental freaks'.[127] Neither did he have any patience with Robert Fludd who had written a highly critical pamphlet about his work.[128]

The advances in learning which were constantly being made in the second half of the sixteenth century, and their far-reaching implications, were seriously discussed in the many English salons or 'Schools'. Reference has already been made to that over which Henry Percy, Earl of Northumberland, presided, and which is sometimes known as 'The School of Night'. His group included Walter Raleigh and his protégé Harriot. The discussions in such groups sprang from the neo-Platonic developments initiated by the Renaissance architects, but the speculations which arose from these sometimes followed strange paths. Northumberland's interests for example, at least prior to his incarceration in the Tower in 1605, can be gauged from his patronage of, among others, Giacopo Castelvetro, the Italian publisher of the works of the Neapolitan prodigy, Giovanni Batista Porta, who was only fifteen years old when the first of his many books, the compendium *Miraculis rerum naturalium* was published in 1560.[129] Porta's many writings:

> '…characterise him as an author stimulating to the Earl's curiosity, for they dealt with physiogonomy, Ptolemaic astronomy, geometry and natural magic, subjects of the kind Northumberland delighted to discuss.'[130]

Other such 'Schools' were presided over by the Earl of Essex and by Thomas Howard, Earl of Arundel. The architect Inigo Jones was a member of the latter, and can hardly have failed to contribute architectural neo-Platonism to its discussions. His own library contained the works both of Palladio and of Vitruvius, the latter with notes in Jones' own hand.[131] The members of these groups were not mere dilettanti; at the very

lowest estimate, learning was 'fashionable', but there is no reason to doubt that the noble patrons had a real interest in probing the secrets of the universe. The groups would hardly have involved such 'serious' researchers as Harriot if the discussions had been no more than flippant. Indeed, from 1598 until his death in 1621, Harriot was maintained by Northumberland as his pensioner at the latter's house at Syon where he occupied his time in astronomical observations and physical experiments.[132] It should be pointed out that modern research indicates that there is probably little truth in the tradition that during his confinement in the Tower Northumberland was attended by the 'three magi' , Harriot, Warner and 'Hues', a story first put about by Dr. Alexander Read (who attended Harriot in his last illness) in a lecture to the College of Physicians in London in 1632, and subsequently quoted both by John Aubrey and Anthony à Wood with no other evidence.[133]

There was nothing atheistical in the speculations which were being made; in the highest sense of the word they were spiritual, or as Francis Johnson prefers to call it, mystical:

> '…they emphasised the Pythagorean element in Platonism which sought to interpret nature in mathematical or quantitative terms…..The mystical attitude which saw God as the great geometer and looked upon the mathematical harmonies to be found in the material world as direct revelations of the Deity, also had its roots in Platonism.'[134]

It is, therefore, apparent that in the early seventeenth century, down whatever strange by-ways speculation might stray, it was the mathematical certainty of geometry which underlay it. The object was to expose, and certainly not to conceal, the mechanism of the Cosmos which the Great Geometer had created, and thereby to lead mankind into a better relationship with its Creator to the intent of increasing its happiness and hope of salvation – for the Protestant Reformation had done nothing to extinguish this hope. Some of the speculations might lead their exponents into territory where prudence might dictate a certain reticence, but there was nothing intrinsically secret about the research.

Nor is there any evidence of architectural secrecy. Under the influence of, in particular, Inigo Jones, the relation between dimensions of buildings being erected in England increasingly reflected cosmic neo-Platonist proportions, for example, those of the harmonic progression summarised in the 'Lambda'.[135] But such 'sacred geometry' was explicit. Its implications might well have been discussed in English Lodges of operative freemasons, but there is not the slightest evidence that in the later sixteenth and in the seventeenth centuries any such Lodges existed. Tempting as such a 'transitional' theory is, and persuasive as is the slight evidence that something of the sort might have occurred in Scotland where there were well-substantiated operative Lodges, it cannot have been the case in England. The operative Lodges which would have formed the link between the mediaeval Master Masons and the English speculatives just did not exist. As John Hamill has put it, the two purely operative Lodges in England, at Alnwick in Northumberland (1701) and at Swalwell in County Durham (1725) are:

> '…a red herring. Their closeness to the Scottish border and method of working indicate Scottish influence rather than evidence of an indigenous growth. It is singularly unlikely that no records of operative lodges in England have survived while so many other documents for the same period have come down to us.'[136]

However in the second half of the seventeenth century there existed in England a monogradal Fellowship which had taken the name of Freemasons. There is no evidence that during this period this was other than a society in which its members, once admitted, were Fellows, no more and no less. After Ashmole's well-known admission into Freemasonry in 1646, he records no other distinction or advancement being conferred on him. Indeed, when he was summoned to a meeting in Masons' Hall on 11 March 1682, not only was he 'the senior Fellow among them', but six gentlemen 'were

admitted into the Fellowship'. All the exposures, catechisms and fragments of ritual prior to *c.* 1710 which refer to a preliminary grade of Apprentice are of Scottish or Irish, apparently Operative, origin[137], and the Master Mason is an even later addition. But by the last quarter of the seventeenth century, at least according to Robert Plot and to John Aubrey, the English Fellowship had acquired signs and tokens protected by an oath of secrecy required from a Candidate on his admission.[138]

This paper does not seek to add to the plethora of conjectures about the origins of our speculative system. Its intention is to demonstrate two matters. In the first place, there is no evidence that there is any direct causal connection between the seventeenth century Fellowship in England and the English operative masons of the Middle Ages. That these operatives had secrets in any mystic or esoteric sense is very improbable; evidence of them is lacking. But even if they possessed any such knowledge, there is also no evidence of any mechanism by which this could have been transmitted to the English Fellowship in the absence of English operative lodges in the sixteenth and seventeenth centuries. The old manuscript Constitutions and Charges, highly valued though they appear to have been by the Lodges of English Fellows, contain in themselves no secret matter, nor is there any indication of what the oaths contained in some of them were intended to protect. These documents in themselves can have played no part in the transmission of secrets even had these existed. The evidence of the Accepcion is so meagre that in spite of Conder's special pleading, it is of no assistance in this respect.[139] In any case in 1620 the London Company of Masons was a Metropolitan 'boss's union' and never became the headquarters of a nation-wide society, operative or otherwise. Admittedly it would be a curious coincidence that speculative Freemasons, at least since the time of Anderson, have clung so tenaciously to the description 'Accepted'[140] if there had been no connection with the 'Accepcion'. Unfortunately there is no evidence to support another possibility, alternative to Conder's thesis that the London Company of Masons might have retained some information, esoteric or otherwise, which was not necessarily communicated even to its most senior officers. This possibility would be that some 'school' or salon had, as it were, 'taken cover' from possible persecution by the authorities within the portals of the Masons' company in order to pursue speculations arising from neo-Platonic architectural geometry. Then rather than the Accepcion being an inner circle of the Livery Company, it could have been a separate body into which, perhaps from no more than curiosity as to what manner of men had chosen to use their Company as a protective colouring, some individual liverymen sought admittance. Had any such refuge been afforded, 1583, the date of the first Charge known to have been prepared after an interval of 180 years might suggest a *terminus a quo*. But even if evidence were found to suggest that any such meetings took place, it would not invalidate the contention that whatever were the secrets of the Fellowship, they were not derived from mediaeval operative sources.

The second intention of this paper is to emphasise that at the heart of the seventeenth century monogradal English Fellowship was the importance of geometry. At this time 'geometry' was neo-Platonic geometry with all its cosmic and spiritual implications. These contained, if not 'secrets', at least some discreetly guarded matters. It may possibly be relevant to note that seven years after Ashmole's admission as a freemason, his Diary for 13 May 1653 records that his adopted alchemical father, William Backhouse, 'lying sick in Fleetstreete over against St. Dunstan's Church, and not knowing whether he should live or die, about eleven o'clock, told me in Silables the true matter of the Philosophers stone which he bequeathed to me as a legacy'. Even Robert Boyle, generally regarded as a pillar of the sceptical enlightenment, and a pillar of the other contemporary Fellowship, the Royal Society, professed his belief in materials, for example *menstruum peracutum,* which would genuinely effect transmutations.[141] It is noteworthy that Raising in the Third Degree, together with almost every degree outside the Craft considered to be legitimate today, involves a search for a word or a stone. To develop this attractive thesis is outside the scope of this paper, but so far as the persistence of the Fellow as the focus of primitive English speculative Freemasonry is

concerned, together with his intimate relationship to Geometry, there is considerably more solid evidential ground.

Although Anderson may have revised his views fifteen years later in the second *Book of Constitutions*, when, with whatever assistance, he wrote the first *Book of Constitutions* in 1723, he made it clear that to be a Fellow was all-sufficient, fitting a Freemason for any Office within the Society, even that of Grand Master.[142] The earliest references to 'Master Mason' as a *degree* occur in 1725–6.[143] Even then, at least according to the exposé *The Mystery of Freemasonry*, 'There is not one Mason in a Hundred that will be at the Expence to pass the Master's Part, except it be for Interest'.[144] Furthermore, the undoubtedly English early exposures specifically preserve the connection between Geometry and the Fellow; this does not occur in any of the surviving Scottish and Irish documents – The Edinburgh Register House, Kevan, Dumfries No. 4, Chetwode Crawley and Trinity College, Dublin, MSS. Even the Sloane MS, although apparently from 'an immediate English Source', but bearing considerable evidence of 'an ultimate Scottish origin'[145], makes no such connection. Only in the English exposures and catechisms is the connection stressed. The Wilkinson MS makes it clear that the letter G which is 'the Center of y^{r} Lodge' signifies Geometry,[146] and *Masonry Dissected* emphasises that a Fellow-Craft is made for the sake of 'Geometry, or the fifth Science'[147]. But as late as 1740 the *Dialogue between Simon and Philip* is even more explicit – Simon replies to his questioner that he was made not just a Fellow Craft but a Mason for the sake of the letter G, signifying Geometry 'the Root and foundation of all Arts and Sciences'.[148] That the G in our Lodges refers to God, the Grand Geometrician of the Universe, is a later development. The importance of the Fellow in English Freemasonry, and his *raison d'être*, Geometry, persist to the present day in spite of the various later accretions. In the Ancient Charge on p 6 of the latest (1995) edition of the *Book of Constitutions* of the UGLE it still states that 'No brother can be a warden until he has passed the part of a fellow-craft, nor a master until he has acted as warden, nor grand warden until he has been master of a lodge, nor grand master until he has been a fellow-craft before his election'. Nowhere in the Laws and Regulations is this contradicted, nor do they contain any other guidance about the qualifications to be appointed warden. Although modern Rituals insist on a Master-elect having passed through the three regular degrees of Freemasonry, the UGLE has never formally approved a Ritual. Evidently it would be, to say the least, inconvenient for a Master of a Lodge not to have been raised as a Master Mason, but since an Installation ostensibly takes place in the Second Degree, the traditional pre-eminence of the Fellow is again emphasised, whatever the constitutional position might be if in fact the Master-elect had progressed no further than this.

Conclusion

Evidently there must have been good reasons for the seventeenth century accepted or speculative Fellows describing themselves as Free-masons, for the respect which they appear to have paid to the old manuscript Charges, and for the emphasis which became placed on secrecy. Modes of recognition had apparently been adopted by English Free-Masons in the second half of the seventeenth century. But if, as seems at least a possibility, these Fellows guarded other more important secrets, we have no evidence to indicate of what these consisted. One thing, however, seems reasonably certain; these secrets, if they existed, could not have been handed down from mediaeval manual workers. I suggest with due deference that in order to shed more light on this matter it is to the period after, say, 1550 that my more able and learned brethren might most profitably direct their researches. Furthermore, if it were from Scottish or Irish sources that the monogradal English Fellows later acquired their Enter'd Prentices, and even, perhaps, the signs and words of the first two degrees as we know them, we should not be overly nationalistic in refusing to admit it. The English Fellowship appears to be the

earliest masonic society of which the members consisted solely of speculatives (that some may incidentally be shown to have connections with the building trade does not of itself invalidate this statement), and as such is not an unworthy forebear. Nor should we shrink from the possibility that the Master Mason's Degree, with its curious substituted secrets, may have become grafted on from some different root-stock – and I am certainly not referring to the death of Jacques de Molay – and even that the essential elements of it may have been an early concern of the Monogradal English Fellowship. But be all that as it may, the evidence which this paper attempts to summarise strongly suggests that any further attempts to discover within the mediaeval building trade whatever secrets may have been possessed by our lineal ancestors in the Fellowship, and vestiges of which we may, perhaps unwittingly, retain today, will be as barren a task in the future as have been the exhaustive researches unsuccessfully directed to it in the past.

In conclusion, I can only hope that my researches do not bring me within the ambit of the condemnation made by an anonymous essayist writing in the *Freemasons Magazine* in 1794:

> 'A man desirous of prying into the secrets of others, is generally vain, and a fool. He will often despise men of eminence and learning, because he holds them in a situation far above his: therefore as Sophocles has judiciously remarked, do not be curious and talk too much – for ears, open to the secrets of others, have also mouths ready to divulge them.'[149]

Notes

[1] E. Wald, *The Selig Hecht Memorial Lecture: Visual problems of Colour* (National Physical Laboratory, HMSO, 1957) p. 30.

[2] J.K. Galbraith, *The Affluent Society* (Hamish Hamilton, London, 1958) *Passim.*

[3] *Emulation Ritual* (Lewis Masonic, London, 7th Edition, 1985) p. 103.

[4] *Constitutions* of the Antient Fraternity of Free and Accepted Masons under the Grand Lodge of England. (Freemasons' Hall, London, 1995) pp. 10–11.

[5] Harry Carr, '600 Years of Craft Ritual' (*AQC* LXXXI, 157, 1968).

[6] Douglas Knoop and GP Jones 'The Mason Word' (*AQC* LI, 1938) *See also* the same authors *The Genesis of Freemasonry* (QCCC Ltd., London, reprinted 1978) where they further make clear their view that the reference to the effect that 'in the purest times of the Kirk' masons had that word refers to the period 1560–1584, and doubted if the 'word' were established before *circa* 1550.

[7] Douglas Knoop, G.P. Jones & D. Hamer *The Early Masonic Catechisms* (Manchester University Press for QCCC Ltd., 2nd edition, 1963) p. 9.

[8] James Anderson '*The New Book of Constitutions…*' (QCCC Ltd., Facsimile edition of the 1738 edition, 1976).

[9] Dr. Laurence Heyworth Mills, *Zarathustra, Philo, the Achaemenids and Israel* (F.A. Brockhaus, Leipzig, 1905–6) Introduction p. 1.

[10] W. Dugdale (Ed. Caley, Ellis & Bandinel) *Monasticon* III, pp. 62, 88 (1817–1830). Norfolk Record Society II 33 (1932).

[11] Lionel Butler & C. Gavin Wilson *Mediaeval Monasteries of Great Britain* (Michael Joseph, London 1979) p. 162.

[12] Thomas Arnold (Ed.) *Memorials of St. Edmund's Abbey* (Chronicles of Great Britain and Ireland, Public Record Office – Rolls Series No. 96, 1982) Vol II p. 290.

[13] *Ibid.* p. 291.

[14] *Ibid.* p. 289.

[15] Douglas Knoop & G.P. Jones, *The Mediaeval Mason* (Manchester University Press, 1933) p. 31.

[16] Douglas Knoop & G.P. Jones, *The Genesis of Freemasonry* (*vide supra*) p. 30.

[17] *Ibid.* p. 37 *see also* the Revd. Canon J.S. Purvis 'Mediaeval Organisation of Lodges' (*The Collected Prestonian Lectures, 1925–1960,* Q.C. Lodge, London 1976) pp. 456–460 *et seq.*

[18] *Ibid.* p. 34.

[19] Douglas Knoop & G.P. Jones, *The Mediaeval Mason* (*vide supra*) p. 31.

[20] Jean Gimpel (*trans.* Teresa Waugh), *The Cathedral Builders* (Michael Russell, Salisbury, England, 1983) p. 59.

[21] *Ibid.* p. 48.

[22] Douglas Knoop & G.P. Jones *The Genesis of Freemasonry* (*vide supra*) p. 8.

[23] *Ibid.* p. 134–5.

[24] *Ibid.* p. 51.

J.R. Clarke, 'External Influences on the Evolution of English Masonry', *AQC* 82 (1969) p. 263.

[25] Douglas Knoop & G.P. Jones, *The Mediaeval Mason* (*vide supra*) p. 1.

[26] Jean Gimpel, *op. cit.*

[27] A.J. Taylor, 'Master James of St. George', *English Historical Review* LXX, 448 (1950) As *magister operacionum* James was paid 3s per day.

[28] John Harvey, *English Mediaeval Architects* (Alan Sutton, Gloucester, England, revised edition,1987) p. 125.

W.R. Lethaby, *Westminster Abbey and the King's Craftsmen* (Duckworth & Co., London, 1906) p.102 & footnote.

Idem *Westminster Abbey re-examined* (Duckworth, London, 1925) p. 4.

Florence E. Harmer, 'Three Westminster Writs of King Edward the Confessor', *English Historical Review* LI 98, footnote 1 (1936).

[29] *Reginaldi monachi Dunelmensis Libellus de Admirandis Beati Cuthberti* (Surtees Society, London, 1835) Glossary (unpaginated) under 'Ingeniator'.

[30] L.C. Lane (ed.) *The Chronicle of Jocelin of Brakelond, Monk of St. Edmondsbury* (Chatto & Windus, 'The King's Classics', London 1907) p. 151 *et passim*.

[31] Charles Cotton (ed.) *Of the burning and repair of the Church in Canterbury in the year 1174. From the Latin of Gervase, a monk of the Priory of Christ Church Canterbury* (Cambridge University Press, 2nd Edition, 1932) p. 8.

[32] *Ibid.* p. 9.

[33] *Ibid.* p. 10.

[34] *Ibid.* p. 11.

[35] J.H. Parker, 'On the English Origin of Gothic Architecture' *Archaeologica* XLIII, p. 73 *et seq*. (Society of Antiquaries, London, 1871).

[36] Reinhard v. Bentman & Heinrich Lickes (*trans*. Anthony Lloyd) *Churches in the Middle Ages* (Cassell, London, 1979) p. 11.

[37] Jean Gimpel, *op cit*. p. 65.

[38] Josef Strzygowski, *Orient oder Rom?* (J.C. Hinrichs'sche Buchhandlung, Leipzig, 1901).

[39] See, for example, J.B. Ward-Perkins, 'The Italian Element in Late Roman and Early Mediaeval Architecture', *Proc. Brit. Acad.,* XXXIII, 1949.

[40] John Harvey, *op.cit.* pp. 118–120.

[41] *Ibid,* p. v. *See also* Nicholas Pevsner, 'The Term 'Architect' in the Middle Ages', *Speculum* XVII (1942) pp. 549–562.

[42] G.C. Coulton, *Art and the Reformation* (Basil Blackwell, Oxford, 1928) p. 174.

This extract from one of Biard's sermons is widely quoted in the literature. It evidently has important implications, specifically for the thesis set out in this paper. The general failure of authors to provide a reference to its source is curious. Coulton also states that a fourteenth century manuscript contains a similar passage – 'Some work by word alone. Note how in these great buildings, there is commonly only one chief master who never lays his hand to the job, and yet takes higher pay than the rest.', without a reference to the source of either. Gimpel quotes Biard with no reference either in the French original *Les Batisseurs de Cathédrales* (Le temps qui court – Editions Seuil, 1958) p. 134 or in the English translation (*loc. cit.*) p. 94. Harvey (*op. cit.*). Introduction p. xliii, refers to Coulton (v.s.) and also to 'Mortet et Deschamps: *Receuil de textes* &c. p. 291', but I have been able to locate only Victor Mortet , *Receuil de Textes relatifs à L'Histoire de l'Architecture et à la condition des Architectes en France au Moyen Age XIe – XIIe Siecles* which does not contain it. Kingsley Porter, *Mediaeval Architecture, its Origins and Development* (The Baker and Taylor Company, New York, 1909) pp. 189–90 refers to a note by 'G(aston) P(aris) in Romania, 18th year, 1889, pp. 288–89 which in turn refers to Lecoy de la Marche *La Chaire Française au Moyen Age* (Didier et Cie. Libraires – Editeurs, Paris, 1868) where in eight references to Biard he gives no direct quotation and says little more than that the latter's Sermons were '*farcis de proverbes français et prêché en partie en 1261'.* (p. 127).

However, 'G.P.' was principally concerned with the derivation of the phrase *Aussi com per mi la taille* stating that he had referred it to *mon savant confrère M. Haureau* who had, he says published, *inter alia, Notice sur la numéro 14952 des manuscrits latin de Bibliothèque Nationale*. J.B. Haureau published several dozen such lengthy translations and commentaries, but Notice 14952 is irrelevant. However, in his *Notice sur le Numéro 13579* Haureau transcribes and analyses a Sermon by Nicholas de Biard, commenting that *Les entrepreneurs de maçonnerie étaient déjà des élégants et faisaient les personnages*: *Magistri cementariorum, virgam et cyrothecas in manibus habentes, aliis dicunt*: *'Parci le me talle', et nihil laborant, et tamen majorem mercedem accipiunt*; *quod faciunt multi moderni praelati.* (*Notices et Extraits des Manuscrits de la Bibliothèque Nationale etc.* Imprimerie Nationale, Paris, 1890, Vol XXXIII, Part 1.) p. 274.

I have set this out at length to illustrate the difficulty of establishing the provenance of statements widely quoted without reference to their source (with the danger that they may be 'accepted as true by repetition') and I only regret that I myself have had no opportunity to consult *Numéro 13579* in the Bibliothèque Nationale.

[43] Archer Taylor (Ed.) *Richard of Bury d'Aungerville* (University of California Press, Berkeley and Los Angeles, 1948) pp. 25–6.

[44] John Harvey, *op. cit.* pp. 238–9.

[45] *Ibid*. pp. 239–45 *passim*.

[46] *Ibid*. p. 124.

[47] *Ibid*. pp. 181–4.

[48] *Ibid*. pp. 311–2.
[49] *Ibid*. pp. 358–66.
See also, for example, Douglas Knoop and G.P. Jones, 'Henry Yeveley and his Associates' (*Journal of the Royal Institute of British Architects*, 1935).
[50] *Ibid*. pp. 352–6.
[51] *Ibid*. pp. 61–2.
[52] *Ibid*. p. 152.
[53] *Ibid*. p. 172.
[54] *Ibid*. pp. 71–2.
[55] *Ibid*. pp. 194–6.
[56] *Ibid*. pp. 94–99.
An Inventory of the Historical Monuments in the City of Oxford (Royal Commission on Historical Monuments, England. H.M.S.O, 1939) p. xxiv and *passim*.
[57] John Harvey, *op. cit.* pp. 230–3.
[58] *Ibid*. p. 22.
[59] *Ibid*. pp. 175–6.
[60] Dictionary of National Biography – 'Bertie,Thomas'.
'Lee, Sir Richard'.
[61] Frank Grainger (Ed.) *Vitruvius on Architecture, translated from Harleian MS 2767* (William Heineman and Sons, London, Loeb Edition, 1931).
[62] *See*, for example, Helen M. Barrett, *Boethius, some aspects of his times and work* (Cambridge University Press, 1944).
[63] 'The Greeks were the first mathematicians who are still 'real' to us today. Oriental mathematics may be a curiosity, but Greek mathematics is the real thing. The Greeks first spoke a language which modern mathematicians understand; as Littlewood said to me once: "…they are not clever schoolboys or scholarship candidates, but Fellows of another College". So Greek mathematics is 'permanent', more permanent than Greek literature. Archimedes will be remembered when Aeschylus is forgotten, because languages die and mathematical ideas do not. 'Immortality' may be a silly word, but probably a mathematician has the best chance of whatever it may mean'. G.H. Hardy, *A Mathematician's Apology* (Cambridge University Press, 1940) pp. 20–21.
[64] 'It is equally difficult to reject the tradition that marks Pythagoras as the true founder of mathematical science; for that science was certainly in existence by the middle of the fifth century B.C. and it must certainly have been the work of someone. If the credit is really due to another than Pythagoras, it is strange that his name should be forgotten'. John Burnet, *Greek Philosophy from Thales to Plato* (Macmillan & Co., London, 1914, reprinted 'Papermac' 1968) p. 30
[65] William Lloyd Macdonald, *The Architecture of the Roman Empire, I, An Introductory Study* (Yale University Press, New Haven and London, 1965) p. 94 *et seq.*
[66] *Ibid*. p130.
[67] Samuel Dill, *Roman Society from Nero to Marcus Aurelius* (Macmillan & Co., London, 1904) p. 256 *et seq.*
[68] Jean Gimpel, *op. cit* . p. 1.
[69] Sumner McKnight Crosby, *The Abbey of St. Denis 475–1122* (Yale University Press, New Haven, 1942) Vol. 1. p. 157, *n*9.
[70] George Lesser *Gothic Cathedrals and Sacred Geometry* (Alec Tirianti, London, 1957–1960) Vol. 1, p. 155.
[71] J. Rykwert (Ed.) *Ten Books on Architecture* (Alec Tirianti, London, 1955) Editor's foreword, p. 5.
[72] R. Willis (transl. & ed.) *Facsimile of the sketch-book of Wilars de Honnecourt, an architect of the thirteenth century with commentaries and descriptions* by M J.B.A. Lessus and M J. Quicherat (John Henry and James Parker, London, 1869).
[73] L.R. Shelby 'The Role of the Master Mason in Mediaeval English Building' *Speculum* XXXIX, 388, *n*8, 1964.
[74] R. de Lespinasse and F. Bonnardot *Le Livre des Métiers d'Étienne Boileau* (Histoire Générale de Paris; Les Métiers et Corporations de la ville de Paris, Imprimerie Générale, Paris, 1879) p. 88 et seq.
[75] Douglas Knoop and G.P. Jones, *The Genesis of Freemasonry*, (*vide supra*) p. 44.
[76] Guildhall Library, London; File L37, Mason's Company MSS 5303/1/2, 5313,5992 etc.
[77] If Roriczer had earlier taken an oath to conceal craft secrets, it is possible that the Bishop of Regensburg had used his powers to absolve him from it.
[78] U. Reichspurger (Ed.) Roriczer, Mathias (Mathes), *Das Buchlein von der fialen Gerechtigkeit* (Trier, 1845).
[79] Charles H. Hoskins, *Studies in the history of mediaeval Science* (Harvard University Press, Cambridge, Mass., 1985) p. 113.
[80] J. Evans (Ed.) *The Flowering of the Middle Ages* (Guild Publishing, London, 1985) p. 91.
[81] Charles Singer, 'Daniel of Morley', *Isis* III 263,1920.
[82] Josiah C. Russell, 'Hereford and Arabic Science in England about 1175–1200', *Isis* XVIII, 14, 1932.
[83] Solomonic influences in the Middle Ages were reviewed by Bro. Gerard Brett. 'King Solomon in the Middle Ages' (*The Collected Prestonian Lectures, 1961–74*, Lewis Masonic, London, 1983) p. 1.
To this summary may be added the extension of the writings of Hrabanus Maurus when in *c.*1030 A.D. Nicholas of Clairvaux (or possibly Peter Damian in whose sermons it is included) identified the Throne of Solomon with the Blessed Virgin herself.
Petrus Damianus, Sermo XLIV 'In Navitate S. Mariae' (Migne, *Patrologia Latina*) CXLIV, Cols 736–740.

See also: F.Wormald, 'The Throne of Solomon and St. Edward's Chair' (*Essays in honour of Erwin Panofsky*, University Press, New York, 1961) p. 532.

S. Schulten, 'Die Buchmalerei des XI Jahrhunderts in Klost St. Vaast in Arras'. *Münchner Jahrbuch der bildenden Kunst*, 3rd Series, VIII p. 79, fig. 50, 1956.

A further development of the Solomonic allegory appears in the *Hortus Deliciarum* of Herrade de Landsberg (who succeded Relinda as Abbess of Hohlenburg in 1167 A.D.). Plate LIV depicts the Throne of Solomon, and in the text Solomon is specifically equated with Christ – *Salomonis Ihu Xpi.*

A. Straab and G. Keller (Eds.) *Hortus Deliciarum*, Herrade de Landsberg (Schlesier and Schweikhardt for the Société pour la Conservation des Monuments Historiques d'Alsace, Strasbourg, 1901).

These examples, together with the many cited by Bro. Brett, illustrate the widespread use of Solomonic symbolism in Christian art and literature in the Middle Ages, but apart from sculpture and wall paintings, architectural representations are rare. It may, however, be noted that one modern authority, largely on the basis of a poem by Avicebron, concludes that the Moorish palace-fortress of the Alhambra, built by Joseph ibn Nagrela, the Jewish Wazeer of King Badis of Granada, incorporated many features deliberately reminiscent of the description of King Solomon's Temple in I Kings VII, incidentally involving an earlier date for the construction of the Alhambra than that generally accepted.

Frederick P. Bargebuhr, *The Alhambra* (William de Gruyter & Co., Berlin, 1968) pp. 98–99 *et passim.*

[84] Bertram Colgrave (Transl. & Ed.), *The life of Bishop Wilfrid* by Eddius Stephanus (Cambridge University Press, 1927) Chapter *xvii.*

D.P. Kirby (Ed.), *St Wilfrid at Hexham* (Oriel Press, Newcastle upon Tyne, 1974) p. 83.

[85] R.W. Southern, *Western Society and the Church in the Middle Ages* (Penguin Books Ltd., Harmondsworth, England, 1974) p. 30.

[86] Circular churches, other than those built by the Templars, in Italy and the Romance Provinces, are for the most part built on classical circular or polygonal ancient ruins which their architects erroneously believed to have been antique temples. Rudolf Wittkower, *Architectural Principles in the Age of Humanism* (4th Edition, Academy Editions, London, 1973) p. 5.

[87] George Lesser, *op. cit.* p. 43.

[88] *Ibid.*, p. 145.

[89] (Dr.) Joseph Sauer, *Symbolik des Kirche baudes und seiner Ausstattung in der Auffasung des Mittelalters* (Herdersche Verlagshandlung, Freiburg im Breslau, 1902) pp. 61–87. (For more detailed significance of Noah's family see p. 79.).

[90] George Lesser, *op. cit.* p. 146.

[91] Sumner McKnight Crosby, *op. cit.* p. 156.

[92] *Ibid.*, p. 157, *n*9.

[93] Author's own measurements from building plans, specifically those in Lionel Butler and C. Given-Wilson, *op. cit.* For an exposition of the rationale underlying this simplicity, see W.W. Covey-Crump 'Mediaeval Master Masons and their Secrets' (*The Collected Prestonian Lectures 1925–1960*, Q.C. Lodge, London, 1967) pp. 145–149.

[94] Robert Lawlor, *Sacred Geometry, philosophy and practice* (Thames and Hudson, London, 1983) p. 93.

[95] Rudolf Wittkower, *Architectural Principles in the Age of Humanism* (Academy Editions, London, 10th Impression, 1977) p. 3 *n*1.

[96] *Ibid.*, p. 8.

[97] Frances A. Yates, *Giordano Bruno and the Hermetic Tradition* (Routledge and Kegan Paul, London, UK Paperback edition, 1978) pp. 12–13.

[98] Alberti presented a manuscript copy of the 'Ten Books' to Pope Nicholas V in1472, but the Latin text was not printed until 1485 by Angelo Poliziano in Florence, dedicated to Lorenzo de Medici. It was reprinted in Paris in 1512 and in Strasbourg in 1541. An Italian translation appeared in 1546, and another , by Cosimo Bartoli, in 1568. Jean Martin, who also translated Vitruvius, published a French translation in Paris in 1553, but the first English translation was that published in London in 1726 by James Leoni.

[99] Rachel A. Taylor, *Leonardo the Florentine* (Harper Brothers, New York and London, 1928) p. 35.

[100] Rudolf Wittkower, *op. cit.*, p. 27.

[101] Giorgio is sometimes spelt 'Ziorzi', possibly to avoid confusion with his contemporary, the distinguished architect Francesco di Giorgio Martini of Siena, a Vitruvian who designed the Duomo at Pavia, and who himself wrote a widely-read text-book on architecture (*Trattato di architettura civile e militare*, which he completed *c*1492).

[102] *Quod Homo imitatur mundum in figura circulare*. It has also been said that Giorgio was strongly influenced by the Hermetico-Cabalist tradition.

'Giorgio, who had learned Cabala and was in touch with Ficinian Florentine circles, was the first to make this new expansion. The profound influence on him of 'Hermes Trismegistus ' in Ficino's translation, has been studied by C. Vasoli with many quotations from the *De Harmonia Mundi* and other of his works to prove it.'

Frances A. Yates, *op. cit.*, p. 151 *n*2.

[103] Rudolf Wittkower, *op. cit.*, Appendix I, p. 155. (The passage quoted from Exodus XXV: 40, refers in fact to the ark; that referring to the Tabernacle is Exodus XXVI: 30. CJM).

(In fact, although citing as his precedent the forms and proportions of the Tabernacle as given to Moses by God, Giorgio was concerned neither with the Ark, nor the Tabernacle, *per se*, but with the '… *model* (of) the fabric of the world'. Exodus XXV: 40, has: 'after their pattern (*tabniyth)* which was shewed thee in the mount', but in Exodus XXVI: 30, we find: 'according to the fashion thereof (*mishpat)* which was shewed thee in the

mount'. Whether fashion or pattern, the fact was that each had been 'shewed … in the mount'. The implication here, is that the pattern or fashion emanated directly from God. Either instance would have sufficed Giorgio for a precedent, other than for the fact that he had specifically referred to the Tabernacle (מִשְׁכָּן *mishkan*), in his text, and so ought he therefore, to have referred to Exodus XXVI.

What may we thus conclude? Did Giorgio misquote his Biblical precedent to be quoted *verbatim,* by Wittkower, or did Wittkower misquote Giorgio? Either way, the full text of Exodus XXV: 40, reads: וּרְאֵה וְעֲשֵׂה בַּתַּבְנִיתָם אֲשֶׁר־אַתָּה מָרְאֶה בָּהָר׃ ס 'And look that thou make *them* after their pattern, which was shewed thee in the mount'. Here, of course, ' *them'* refers to the vessels (כֵּלָי *k'eliy*) spoken of in the previous verse 39, and not to the ark which features earlier in the text. Ed.)

[104] Plato, *Timaeus* (Transl. & ed. The Revd. R.G. Bury) (Loeb Edition, William Heinemann, London, 5th reprint, 1929) pp. 62–73 and footnotes.

The harmonic equivalence may be summarised briefly by first noting that in the *Timaeus* the Demiurge is described as constructing the 'Soul of the Universe' from a mixture 'of the Same, of the Other and of Being', by making a seven-fold division, the sizes of the six larger portions of which are related to that of the first by the first three powers of the integers 'two' and 'three'. This gives rise to a basic series of which the constituents are the numbers 1, 2, 3, 4, 8, 9 and 27. The intervals in this series were then 'filled up' by inserting between each pair of integers each of the two Pythagorean means, the 'Arithmetical' and the 'Harmonic' (*see* Note 111 below). The resulting complex extended series correspond to the relative stopped lengths of the string in the Hellenic monochord which gave rise to the harmonic musical scale. The Octave terms evidently occur in the series 1:2:4:8:16 which also incorporates the third mean, the 'geometric', while, for example, a 'fifth' (diapente) is produced by the string length ratio 2:3 and a 'third' by 3:4.

That musical harmony had this mathematical basis convinced the neo-Platonists that the ratios or proportions which were incorporated within it had a fundamental significance. Accepting that these proportions underlay the Cosmic structure (as set out in the *Timaeus*), it was thus evident to them that the relationships should therefore be incorporated in buildings, in particular to sacred edifices dedicated to God. This applied not only to two dimensions. The continuation of the passage in the *Timaeus* was interpreted as indicating how these proportions should be applied to three-dimensional structures in order further to express the divine harmony.

It is also, perhaps, worth noting that the two power-series (1), 2, 4, 8 and (1), 3, 9, 27 which when combined were considered to unite the human microcosm to the universal macrocosm were referred to as the male (odd-numbered) series and the female (even-numbered) series, and were traditionally depicted each on one arm of a capital lambda L, an inverted 'V' not dissimilar to a pair of compasses, with the common number 1 at the apex. It would be no more than unsupported speculation to unite this with the gnomon used by the Pythagoreans to distinguish 'odd' and 'even' numbers and to provide the earliest proof of the 'theorem of Pythagoras'.

[105] Rudolf Wittkower, *op. cit.*, p. 156.

[106] Rachel A. Taylor, *op. cit.*, p. 65.

[107] '…the technique of educating the architect was significantly altered by the development, from the fifteenth century onward, of a new genre of European literature which dealt with the theory and practice of architecture. No longer was it necessary to go through the training programs of the building crafts with their hierarchy of apprentices, journeymen and masters. One could go directly to the books on architecture that first appeared as a trickle in the fifteenth century……By means of books one could learn about the art of building and could avoid thereby the taint of being associated with or identified as a craftsman; the age of the gentleman architect was dawning.

L.R. Shelby, *Gothic Design Technique* (Southern Illinois University Press, 1977) p. 4.

[108] James S. Ackerman, *Palladio* (Penguin Books, London, 1966) p. 25.

[109] *Ibid*., pp. 31–2.

[110] Daniele Barbaro, *Ad Vitruvium*, Vol. I, ii, 3, quoted by Wittkower, *op. cit.*, p. 39.

[111] A 'geometric' progression is one in which, for example the measurements of the dimensions of a room, that is, length, width and height, are in the ratio 18:12 :8. These numbers are related in the sense that 18/12 = 12/8.

An example of a 'harmonic' progression would be the ratio 6:4:3, where (6 – 4)/6 = (4 – 3)/3.

For the relation of this to sixteenth century musical theory, see Wittkower, *op. cit.*, pp. 132–3.

[112] James S. Ackerman, *op. cit.*, pp. 161–2.

[113] For an exposition of this, *see* Joseph L. Blau, *The Christian Interpretation of the Cabala in the Renaissance* (Columbia University Press, 1944).

[114] Frances A. Yates, *The occult philosophy in the Elizabethan Age* (Routledge & Kegan Paul, London, Boston and Henley, 1979) p. 20.

(The present author prefers to leave to others the evaluation of the significance, if any, of the intrusion of the letter 'shin' into several Masonic Orders 'outside the Craft'.)

[115] In his treatise *True and Faithful Relations* Dee wrote 'I have often read in Thy (God's) books and records, how Enoch enjoyed thy favour and conversations; with Moses Thou wast familiar: and also that to Abraham, Isaack, and Jacob, Joshua, Gideon, Esdras, Daniel, Tobias, and sundry others thy good angels were sent by thy disposition to instruct them.' British Museum *Sloane* MS. 3188, Fols. 118–9.

See also: *A True & Faithful Relation of What passed for many Years Between Dr. John Dee and Some Spirits – with a Preface*……by Meric Casaubon, D.D. (London, 1659).

[116] Francis R. Johnson, *Astronomical Thought in Renaissance England* (The Johns Hopkins Press, Baltimore, 1937) p. 9 *n*5

[117] *Ibid*., p. 3 *n*2

[118] Thomas Digges, *A Geometrical Practical Treatize named Pantometria* (Abel Jeffes, London, 1591).

[119] 'When the proportion of two magnitudes is such as maie be expressed with numbers, then it is certaine and apparent and here is called rationall; But when the proportion is such as cannot be expressed with numbers, but with their rootes onlie, then is that proportion certaine also, but not apparante, and therefore I name it surde or irrational'.

Ibid., p. 98.

[120] Robert Fludd, born 1574, M.A. St. John's College, Oxford, 1598, returned to Christ Church becoming Doctor of Medicine, 1605, Fellow of the Royal College of Physicians, September 1609. *See*, for example, Joscelyn Godwin, *Robert Fludd* (Thames and Hudson, London 1979).

[121] Francis R. Johnson, *op. cit*., p. 5.

[122] *Ibid*., pp. 10–12 and *n*9.

[123] *Ibid*., p. 226.

See also G.B. Harrison (Ed.) *Willobie His Avisa* (John Lane, The Bodley Head, London, 1926) pp. 204, 209 etc. In this curious work, Raleigh figures as 'Don Adriano de Armado', and Harriot as 'Holofernes'.

[124] Kepler was christened 'Johannes' because he was born on St. John's Day, 27 December 1571.

[125] (Dr.)Ch. Frisch (Ed.) Johannes Kepleri, *Astronomi Opera Omnia* (Heyder and Zimmer, Frankfurt, 1858–1871) Vol. 2, pp. 67–75.

[126] Max Caspar, *Kepler* (Abelard Schuman, London and New York, 1959) p. 93.

[127] *Ibid.,* p. 292.

[128] *Ibid.,* p. 290–1.

[129] Porta wrote a large number of scientific books as well as a dozen plays. While some of his works were straight-forward mathematical treatises, for example *Elementarum curvilinionum*, published in 1601 in which he set out several Euclidian theorems, and also methods of doubling, tripling and septupling the circle (but which, not surprisingly, he admitted his failure to square), others were more recherché. His *Ars Reminiscendi* published in the following year, was academically correct, following Aristotle and 'Tully' (although it is almost certain that the *Ad Herennium* is wrongly attributed to Cicero), and his work on ancient ciphers *De furtivis literarum notis vulgo de Ziforis III,* published in 1591 and dedicated to Northumberland was not particularly contentious. His volume on *Thaumatology* and some other similar works were less innocent.

See D**** [Duquesne] *Notice historique sur la vie et les ouvrages de J-B Porta gentilhomme Napolitain* (Paris, An IX (1798).

Porta belonged to the Academia Lyncei in Naples of which he formed his own inner circle, the Academia Secretorum Naturae. (Frances A. Yates, *The Art of Memory* [Penguin Books edition, 1978] p. 202.).

The 'Lynxes' fell under Papal suspicion, were investigated by the Inquisition, and the Academy was dissolved by Pope Paul III.

[130] Eleanor Rosenberg, 'Giacopo Castelvetro, Italian publisher in Elizabethan London and his patrons' (*The Huntingdon Library Quarterly*, Vol. VI, [2], February 1943) p. 119.

[131] Dictionary of National Biography, 'Jones, Inigo'.

[132] John W. Shirley, *Thomas Harriot: A Biography* (Clarendon Press, Oxford, 1983), p. 210 *et seq*.

[133] J.W. Shirley (Ed.), *Thomas Harriot, Renaissance Scientist* (Symposium held at the University of Delaware 5–7 April 1971, Clarendon Press, Oxford, 1974) pp. 27 and 30.

[134] Francis R. Johnson, *op. cit.,* p. 289.

[135] Rudolf Wittkower, 'Inigo Jones, Architect and Man of Letters' *Journal of the R.I.B.A.*, LX, 83 *et seq*., 1953.

[136] John Hamill, *The Craft. A History of English Freemasonry* (The Aquarian Press, London, 1986) p. 26.

[137] Douglas Knoop, G.P. Jones and Douglas Hamer, *Early Masonic Catechisms* (Manchester University Press, revised edition, 1963) pp. 31–70.

[138] Douglas Knoop, G.P. Jones and Douglas Hamer, *Early Masonic Pamphlets* (Q.C.C.C. Ltd. London, 1978) pp. 32, 42.

[139] E. Conder, *Records of the Hole Crafte and Fellowship of Masons* (Sonnenschein & Co., London, 1894).

[140] John Hamill, *op. cit.*, p. 28.

[141] Laurence M. Principe, *The Aspiring Adept; Robert Boyle and his alchemical Quest* (Princeton University Press, 1998) pp. 69 *et seq*.

[142] James Anderson, *op. cit.* pp. 51, 71.

[143] Douglas Knoop, G.P. Jones and Douglas Hamer, *The Early Masonic Catechisms* (Manchester University Press, revised edition, 1963) Introduction, p. 21.

[144] *Ibid*., 'The Mystery of Freemasonry', p. 155.

[145] *Ibid*., 'The Sloane MS. 3329', p. 45.

[146] *Ibid*., 'The Wilkinson MS', p. 130.

[147] *Ibid*., 'Masonry Dissected', pp. 166–7.

[148] *Ibid*., 'Dialogue between Simon and Philip p. 175.

[149] Essayist (anon.) 'Secrets', *The Freemasons Magazine,* January, 1794 (T. Burton & Co., 28 Little Queen St., Holborn) p. 49.

★ ★ ★ ★ ★

On the conclusion of the Paper a vote of thanks was accorded to Bro. John Mandleberg, on the proposition of the W.M., Bro. Dirk C.J. van Peype, seconded by Bro. R.B. Khambatta, SW. Comments were offered by Bros. A. Trevor Stewart and J. Hamill. These together with several written comments received subsequently, are all reproduced below.

Bro. Dirk C.J. van Peype, WM, said:

The Brethren who are acquainted with Bro. John Mandleberg's monumental work *Ancient and Accepted* have no doubt been looking forward to the presentation of this, his paper on 'the Secrets of the Craft'. I congratulate him on having presented the Lodge today with this well researched , methodical and well-argued paper.

Rewriting some of the history of the mediaeval building trade, Bro Mandleberg concludes 'that it is difficult to envisage a close-knit and well-ordered fraternity of a 'Lodge' in anything resembling our sense of the word' and that 'there is no record or other evidence' that the mason's working tools 'were moralised by freemasons, operative or speculative, before the eighteenth century'. Recognizing the influence of the 'Sacred Geometry' on mediaeval builders and of neo-Platonism on architects of the classical period on the one hand, Bro Mandleberg on the other hand is very convincing in his views that there is nothing 'secret' about these concepts when he argues 'The object was to expose, and certainly not to conceal the mechanism of the Cosmos which the Great Geometer had created...' In my opinion the paragraphs on Sacred Geometry in the middle ages and on the neo-Platonic revival are a valuable contribution to the history of ideas in relation to the subject-matter of this paper.

I propose a heartfelt vote of thanks to Bro. John Mandleberg for having presented a thought-provoking and most interesting paper to the Lodge.

Bro. A. Trevor Stewart, JW, wrote:

Members of this Lodge are all too aware of the flurry of 'mystical musings' about a 'sacred geometry' in which many writers (e.g., G. Lesser *et alia*) have supposed that a hidden wisdom underlies the design and construction of huge medieval stone buildings. This recurrent sort of romanticising reminds me of the reaction of the Anglo-Saxon poet who viewed the decaying ruins of neglected Roman buildings in southern Britain, long after the legions had left for Rome, as 'the marvellous work of giants'.

There may be, of course, a different explanation for this tendency. One distinguishing feature of human cognitive functioning is that we seek rational explanations of reality in the patterning of perceived phenomena. Our perceptions of phenomena are 'filtered' through these structures. We feel reassured if a pattern is there. Patterns help us to cope. Some psychologists have argued that our urge to discover phenomenological patterns and, in their absence, to formulate new ones is a defining characteristic of human cognitive functioning. Sometimes the patterns which we impose are not inherent in the phenomena themselves. They may be, in that sense useful, albeit 'artificial' constructs. It might be asserted, somewhat cynically perhaps, that these repeated attempts to unearth underlying ('hidden') geometrical designs in huge medieval buildings – like the Gothic cathedrals – are merely evidence for this all too human propensity. We 'discover', or invent, this 'sacred geometry' because that is how our minds must work.

Bro. Mandleberg, provides a rational approach to a proper study of the supposed 'secrets' possessed by medieval master masons, simply by asking: 'What actual, verifiable evidence, if any, is there of the so-called 'Hermetic' or secret knowledge used by medieval architects to construct their cathedrals with these alleged hidden patterns'? The common consensus of informed opinion among masonic scholars now is, as he has

reminded us, that the basis of the so-called 'hidden' knowledge among medieval master stonemasons was merely geometry. Indeed, it has been argued elsewhere that for those distant craftsmen 'geometry' was synonymous with 'masonry' and that whatever they possessed or used in their construction work was not derived from formal schooling but from an oral tradition in which practicalities were handed on from travelling masters to journeyman disciples.[1]

However, as Bro. Mandleberg's paper shows, that does not go far enough. Even though centuries have passed since those days of the constructing of the famous Gothic cathedrals, we should not abandon as impossible our attempts to achieve a deeper understanding of the principles by which the medieval masters conducted their craft. But, like Bro. Mandleberg, I prefer to deal with verifiable evidence and would suggest that it is still possible to make a more comprehensive and objective assessment of the content of the inherited oral tradition (or store of architectural 'wisdom') which the medieval master masons had at their disposal. Fortunately, there are hundreds of their notebooks which they compiled mainly for their own personal use or more rarely for didactic purposes.

It is a remarkable fact that no less than 488 of these informal texts, in MS or in printed formats, have managed somehow to survive from those remote times. Most of these MSS originated in the period *c.* 1350 to *c.* 1570 and range geographically from Paris to Strasbourg, from Prague to Austria and southern Germany. They can be classified into the following categories:

- four types of theoretical designs (e.g., demonstrations of geometric progressions; design tricks such as reduction of enlargements and the construction of spirals and ellipses; exempla of good practice; exempla of cross-sections, elevations and projections)
- four types of educational plans (e.g., exempla of basic geometrical constructions; examination drawings; geometric solutions of the definition of sizes of architectural details and lettering samples
- eleven types of working plans (e.g., original sketch plans; general preliminary plans and elevations; show plans for building 'committees'; intermediate plans dealing with segments of the particular buildings or with specific problems; details sketches of ribs and profiles etc.; simplified line drawings for the study of proportions and the location of key points for measurement; full-size preparatory drawings to be used in the cutting of templates; staircase plans; placement or positioning charts;' contractors' samples of vaults and other details including 'cut-outs'; designs for ecclesiastical furniture such as baldachins, monstrances, pulpits, screens and tabernacles
- five types of special plans (e.g., architectural 'fantasies'; copies made for the use at known other sites; drawings that display conscious architectural virtuosity; free-hand sketches of existing buildings; memorial views retained as family heirlooms or intended for publication)
- eight types of sketch and lodge books (e.g., the well-known personal note and sketch books the contents of which range over large areas of Gothic architecture, including the bisection of angles, the general layout of buildings and triangulation; pattern books of architectural models intended mainly for wealthy patrons; technical books on construction and machinery; leaf-cutters' books; a few theoretical treatises on specific aspects of construction that were compiled for didactic purposes; diaries that chart the rate of progress in the construction of certain buildings; shop manuals and finally accounts.

In addition to this wealth of MS testimony there are the many templates, the 'Reissboden' – type models, stone samples and other architectural models (e.g., those preserved at San Petronia in Bologna and those at Fabbrica del Duoma in Milan).

Such a remarkable accumulation of private testimony cannot be disregarded by anyone who intends to make a thorough analysis of medieval architectural methods. At the very least, these precious texts form invaluable evidence of the private technical

musings of those now distant craftsmen. Hence, they provide us with extremely useful insights into their general approach to design and construction. The crucial fact in assessing their value is that they were compiled mainly for private use and not for publication. For the most part they were certainly never meant to be read by others. Presumably, they were carried about between sites much as any architect might do these days on site inspections and they consist of notes which were made at the time of those inspections (or shortly afterwards) just to remind them of facts which had come to their knowledge while talking to other builders and looking at their work. Therefore, these MSS can be taken collectively as a clear indication of the extent of their compilers' architectural knowledge, of the mathematical principles by which they conducted their trade and, more rarely, of their general cultural interests too.

It may be worthwhile, therefore, in amplification to Bro. Mandleberg's most welcome paper to remind readers of the relevant details of the better known examples of this remarkable accumulation of medieval testimony. In doing so I want to be associated with his forthright dismissal of the persistent theory that these operatives shared a body of occult, or Hermetic, knowledge which they used in their architecture and which can be deduced from an examination of the plans of those structures. It is in this spirit that I offer the following notes which presumably time and space prevented Bro. Mandleberg from giving in the printed version of his paper.

One of the earliest examples of the medieval texts is, of course, the famous parchment 'Sketchbook' of Villard de Honnecourt (*c.* 1175–1240) which is preserved in the Bibliothèque Nationale in Paris (MS fr.19093). This consists now of 66 pages,[2] of varying sizes – 240mm x 160mm to 235mm x 154mm. Most of the entries were made in the period *c.* 1215–1233, though there were some later entries (some theoretical passages and Latin titles) added by the so-called 'Magister II' – the later owner and user of the notebook. These entries marked its latest use in *c.* 1240.

The Sketchbook consists of:

- 96 architectural and machinery drawings;
- 94 figural drawings;
- 43 animal drawings
- some annotations in French.

From these Villard emerges primarily as someone with a craftsman's acute perceptivity, delighting in machinery, eager to preserve tradition as he experienced it but also keen to keep up with improvements and discoveries in construction techniques. His annotations are all in French and though they are vivid and accurate they show him not to have been a scholar.

Using his Sketchbook to assess the general level of Villard's intellectualism we can find traces of:

- the *trivium* (e.g., in his use of grammar, rhetorical devices and dialectical reasoning and
- the *quadrivium* (e.g., in his pre-occupation with arithmetic and geometry)

However, while he shows a sustained interest in the minutiae of surveying techniques and in construction machinery, there is no trace of him having enjoyed other scientific and artistic areas (e.g., astronomy and music). So there are no passages in which he indulges in astronomical speculations or searches for evidence of cosmological 'harmony'. His Sketchbook is merely a personal record and a proof of his drafting abilities. It is an illustrated compendium that reveals the wide range of his practical experience at various major European construction sites over several years. It testifies to his grasp of the complexities of construction techniques as well as his sustained interest in the fields of related practical knowledge that were the immediate concern of all medieval master masons:

- architectural and sculptural theory;
- furniture design;

- machinery and
- carpentry.

The Sketchbook shows that he kept in contact with intellectuals (e.g., his Benedictine teachers in Honnecourt, the Cistercian community at Vaucelles, military engineers and the architects, sub-contractors and sculptors at Rheims). It shows him also to have been a clever though slightly naïve provincial, always trying to improve his technical skills in the (ultimately unsuccessful) hope of obtaining a major architectural commission.

In the late 1230s Villard became interested in architectural theory and apparently he began to worry about the survival of his construction principles and his reputation. Hence, he re-organised his Sketchbook and turned it into a sort of textbook for others. He labelled and reformatted his ideas and professional experiences hoping that this would transform them into a pictorial treatise on architecture and related trades. Even so, it is commonly acknowledged that the resulting text clearly shows his lack of original and creative talent. Perhaps that is why he was never awarded a major construction project.

Another early relevant text is the anonymous 13th century French MS algorism 'Practiké de geometrie' (*c.* 1275)[3] which first of all propounds a useful analysis of 'geometry' into three parts which, by then, had become customary:

- planimetry (= the measurement of plane surfaces);
- altimetry (= the measurement of heights and depths) and
- cosmimetry (= the determination of details in geometry and astronomy).

Next, it describes briefly how an astrolabe might be used in calculating the lengths of straight lines (e.g., distances across a wood or a river; the height of a tree or of a church steeple). Then it explains how to determine the areas of geometrical figures (e.g., circles, triangles, squares, pentagons, hexagons and heptagons). Its fourth section sets out various exercises that determine the differences between the sears of circles and of those squares which inscribe them and *visa versa*. Then it provides solutions to practical surveying problems such as:

- how to calculate the acreage of fields;
- how to work out the number of messuages of a given size in a given area;
- how to determine cylindrical volumes.

It concludes with a section devoted to the arithmetical conversion of currencies. Clearly, the emphasis throughout is on surveying and metrology and there is no application of practical geometry to mechanical and constructive arts apart from one confused formula to be used in determining the volume of cylindrical columns of masonry that was derived from an ancient fragmentary Latin treatise, *De geometria columnarum et mensuriis aliis*, which is included in many medieval MSS that preserve, *inter alia*, Roman agrimensorial treatises. Nothing much that might be described as 'Hermetic' here!

From nearly two centuries later, we have two remarkable sole surviving printed texts of Matthias Roriczer:

- *Buchlein von der Fialen Gerechtigkeit* (1486) and
- *Geometria deutsch* (*c.* 1488).[4]

The former is concerned only with problems of architectural design and delineates techniques he acquired from the famous Parler family of master stonemasons in Prague. There is no record of these wonderful craftsmen having produced written records of their techniques so Roziczer must have acquired his knowledge of these techniques orally. The latter is a 12–page incongruous compilation of simple geometrical problems together with other techniques of architectural design and construction that are somewhat similar to the contents of Villard de Honnecourt's Sketchbook. Rorizcer provides us with lettered diagrams and brief explanations to solutions of the following problems:

- how to construct right angles, pentagons, heptagons and octagons;
- how to determine the length of a circle's circumference;
- how to find the centre of a circle with only an arc known;
- how to construct squares and triangles that have the same areas;
- how to set out the mouldings and finials for a gable and
- how to set out the plan of a gable.

There are remarkable close parallels between the text of this pamphlet, *Geometria deutsch*, and an earlier 15th century treatise of geometry, *De inquisicione capacitatis figorarum*, that was compiled by Magister Reinhard de Vurm[5] and which ended up in the Bibliotheca Regiae in Munich via Vienna and Salzburg. Roriczer worked on building projects in Munich so it is just possible that he had sight of it.

However, Roriczer's procedures are strictly those of constructive geometry: e.g., manipulating compasses and ruler to draw heptagons inside circles and octagons. But he never attempts to prove these constructions mathematically. His method of working out the length of a circle's circumference, presumably a common requirement in medieval building projects, also involved the use of just compasses and ruler. His pamphlets show how medieval master stonemasons approached geometrical problems, that otherwise would have required mathematical calculations to achieve solutions but avoided such mental labour by employing a simple, step-by-step manipulation of working tools. Indeed, Roriczer's language seems to imply throughout that he was not conceiving these problems in mathematical terms. His formulae are merely prescriptive and apparently he too felt no need to demonstrate their correctness. Furthermore, his 'solutions' are often only approximate (e.g., in his formula to construct a square and a triangle of equal areas) and he makes no attempt to rely only on available Euclidean calculations. If he did have access to works such as *De inquisicione* he seems to have borrowed only such formulae as are capable of expression in terms of constructive geometry and to have avoided all others that required Euclidean reasoning.

There are comparable, non-Euclidean formulae propounded by Hans Schmuttermayer of Nürnberg, one of Roriczer's contemporaries.[6] His revealing little, untitled instruction manual, *Fialenbuchlein*, was compiled with a clearer didactic purpose in mind:

> '…for the instruction of our fellowmen and all masters and journeymen who use this high and free art of geometry, in order that their feelings, speculations and imaginings can, with thought, be better subjected to the correct rules of measured stonework and take root.'

It has an interesting 'Preface' which contains a passage which modern speculative Freemasons might find intriguing:

> 'Fundamentally, this art [geometry] is freely and truly planted and founded on the centre point of the circle, together with its circumference of correctly set point and construction … this high art of building construction … had its true base in the level, set-square, triangle, compasses and straight-edge…'

From the early decades of the 16th century there are the similar *Unterweisung* (1516) written by Lorenz Lechler[7] and from the 1570s there is also the comparable 'Frankfurt Sketchbook' of 'Master W.G.'[8]

Nearly all of these 480+ extant MSS share a heterogeneous character. This fact can be explained perhaps by assuming that these medieval master stonemasons did not teach from books. Generally, these texts display no systematic literary organisation because they were the products of, and operated within, a largely oral tradition rather than a written, scholastic tradition. Their authors worked from memory and experience in their craft's techniques. Consequently, in trying to describe some of these techniques in writing and using somewhat crude illustrations, they had no established literary forms on which to pattern their compilations. They jotted their notes down in the same manner as they taught.

It is true that these early MSS provide us with a representative perspective of building practices from the early 13th to the mid-16th century, spanning the whole range of architectural interests, techniques and designs, as well as demonstrating the master stonemasons' omnivorous curiosity, industry and zeal but they also reveal to us quite clearly that their concerns were those of the medieval building site and not those of the schoolroom.

Medieval master masons seem to have been incapable of mathematical reasoning that would have enabled them to develop their solutions to construction problems beyond the mere painstaking manipulation of builders' working tools: e.g., into the realm of Euclidean methodology. Their geometry resembles neither classical geometry nor that contained in the medieval treatises on *practica geometriae*. Mathematically it was extremely simple for their focus was not to provide valid, mathematically exact solutions to practical problems but to transform well-known geometrical constructions into architectural forms in stonework. Their formulae were merely a series of rules and practical procedures in manipulating standard geometrical forms: the square, the diagon (or right rectangle), the auron (or golden-section rectangle), the equilateral triangle and its derivations; elevation and projection methods and, of course, the circle. Generally, they were content to work within such formulae. Lesser craftsmen adhered even more closely and more mechanically to these inherited formulae while greater men among them adapted the formulae to solve particular problems to suit their patrons' inclinations and to make their own artistic statements, but these latter continued to use the language of forms that were common to all of those who worked within the oral traditions and techniques of the medieval stonemasons' craft. For medieval master masons, therefore, the 'art of geometry' was an inherited largely oral tradition which enabled them to perceive design and building problems in terms of a few basic geometrical figures. They manipulated these through a series of steps that were prescribed carefully so as to produce points, lines and curves that were needed for the solution of those problems. Using the accumulated MS testimony, we can see now that their 'art of geometry' was based on pragmatic building operation suited to particular times and places rather than on 'universal' occult 'laws'.

It is clearly tempting for some modern, popular writers to claim that the wonderful Gothic cathedrals throughout Europe were constructed somehow according to mystical or occult principles and patterns. Some of them make this assumption because if such a 'sacred geometry' were to be 'found', this would help somehow to account for the rise of speculative Freemasonry in the late 17th and early 18th centuries and lend some authenticity to the claim that speculative Freemasonry was the legatee of that 'occult' tradition. However, the evidence of the medieval MSS seems to indicate clearly and comprehensively that these master craftsmen were not occultists. They did not possess or use any 'Hermetic' knowledge. They had their feet planted very firmly on the various building sites, places where we can still wonder at their achievements today. We should thank Bro. Mandleberg for pouring a much-needed douche of cold water on such fanciful speculations.

Notes

[1] Shelby, L.R., 'The Education of Medieval English Master Masons', *Mediaeval Studies* vol. 32 (1970), pp. 1–26. Cf. Gunther, G., *Geschichte des mathematischen Unterrichts im deutschen Mittlealter*, (1897), pp. 286–355, esp. pp. 326ff.

[2] H.R. Hahnloser, in his 1972 study, speculated that originally the MS consisted of 96 pages but that it has suffered from successive mutilations.

[3] Martlet, V., 'Le Plus ancien traite francais d'algorisme', *Bibliotheca Mathematica* 3rd series, vol. 9 (1908–9), pp. 60–63.

[4] Both were edited by K. Heideloff in 1844. Cf. Shelby, L. R., *Gothic Design Techniques – The 15th Century Design Booklets of Matthias Roriczer and Hanns Schmuttermayer*, (1977).

[5] E.g., the procedures which Roriczer sets out for constructing heptagons and octagons are exactly those in *De inquisicione*.

[6] *See* Shelby, L. R. (1977), *op. cit.*.
[7] Cologne Historisches Archiv, Handschrift Wf.276.
[8] *See* Hoffstadt, F., *Gothisches ABC Buch des ist – Grundreglen des gotischen Styles fur Kunstler und Werkleute*, (1840).

Bro. D. Caywood wrote:

I cannot accept, as apparently Bro.Mandleberg does, that it is evident that a skilled and experienced craftsman, even of Master Hugh's stature, was not supervisory material. In my opinion such a person would be ideal to supervise major reconstruction and restoration work. Nor do I think the title 'Master' as applied to Hugh, was an honorific one, I see the title as a plain statement of fact – he was Master in the true sense of the word – a Master of his trade. The glowing reports of the work done by Hugh earlier in the century under the priors Hervey and Talbot testify to his suitability as a supervisor and his capability as a man proficient in construction work, who was perhaps, better able to undertake the work in wake of the fire of 1150 than the Sacrist was. The claim that Abbot Samson appointed Hugo the Sacrist to direct and supervise the work is far from convincing.

If the re-constuction and restoration of the Abbey of St. Edmunds was indeed done under the supervision of Hugo the Sacrist as stated by Bro. Mandleberg – then the resurrection of the phoenix took longer than one would expect – Hugo did not become the Sacrist until 1182, when he succeeded William who was deposed by Abbot Samson soon after his election in the same year and Hugo was appointed in his stead. He was formerly a Chaplain.

There were two Chaplains, both acted as secretaries to the Abbot. Confirmation of this may be seen in Charter No.16 contained in *The Kalendar of Abbot Samson*, (p.83).[1] The witness list names the obedientaries – Hugo and Jocelin Chaplains (*Hugo et Jocelius capellari*) are among them, as are several religious brethren together with a solitary *Magister* Odo, a layman, who was probably one of the two Chamberlains (*cameraio*), he being responsible for the Abbot's Chambers, while the other would be a monk, who would attend to the Abbot's clothing.

Twelve of the Charters in the *Kalendar* – which was drawn up between *c.* 1186–1191, show Hugo as the Sacrist. In three other Charters he is described as occupying a dual role – that of Sacrist and Chamberlain (*Sacrista et Cameraio*). Nos. 60 and 63 are dated 1198 and the third, No. 14, dated *c.* 1186–1200. The last of the Charters concerning Hugo, No. 65, dated 1200, (p. 112), describes him as Sacrist only (*Hugone Sacrista*) under Herbert as Prior (*Herberto priore*). Jocelin,[2] (p. 127), notes that Hugo was a very old man at this time, it seems that he died that year or soon after.

I do not know how long Hugo occupied the office of Chaplain before his elevation to Sacrist – perhaps it would be more accurate to attribute the work to Hugo the Chaplain or Chamberlain rather than to Hugo the Sacrist. That is if Master Hugh is excluded from the attribution credits. Master Hugh fits more neatly into the timescale than Hugo does. For Hugo to be appointed the 'Architect' of the restoration work thirty-two years after the fire seems very odd indeed.

I wish to be associated with what will surely be a hearty vote of thanks to Bro. Mandleberg for a very interesting and scholarly paper.

Notes

[1] *The Kalendar of Abbot Samson and Related Documents,* Ed. R.H.C. Davis, MA, (Camden Third Series Vol. LXXXIV, 1954).
[2] *The Chronicle of Jocelin of Brakelon,* Ed. H.F. Butler, (Nelsons Medieval Studies, 1940).

Bro. J.M. Hamill said:

Worshipful Master I join with you and the previous speakers in thanks to Brother Mandleberg.

I believe that he does himself a disservice. It is quite true that his paper is not about the origins of our Institution but in producing it he has put another large and mighty nail in the coffin of the tripartite theory of our origins. I see his paper as a valuable contribution following on from the late Brothers Eric Ward and Colin Dyer and that wonderful piece of whimsy that was the late Brother Cyril Batham's last contribution to our *Transactions.* The idea of an operative – transitional – speculative development, what Eric Ward referred to irreverently as the Gospel according to Harry Carr, has had such a grip on previous members of this Lodge that it was almost a cardinal sin to remind people that it was but a theory and that there were equally valid theories worth exploring, as Ward, Dyer, Batham, Haffner, Seal Coon and Markham have done in our *Transactions*.

Brother Mandleberg's comments on Fellowship, Fellows and Fellowcraft are almost a glimpse of the blindingly obvious. Other clichés such as 'not seeing the wood for the trees' spring to mind. One of the besetting sins of masonic writers is to look at the past using the eyes and experiences of today, not putting ourselves into the times and practices of the particular period we are studying. Brother Mandleberg rightly points out that in England in the 17th and early 18th centuries all were Fellows. I would go further. Up to the union of the two English Grand Lodges in 1813 it was not essential to be more than a Fellowcraft. Constitutionally it was perfectly possible and proper for a Fellowcraft to be Master of a lodge. We have two reminders of that in the current Installation ceremony: the Master-Elect is presented and takes his obligation as such in the second degree, and in reciting to him the essential qualifications for the Master's Chair the Installing Master tells him, *inter alia,* that he must be 'held in high estimation by his Brethren and Fellows'. Although the first evidence for the working of the Master Mason degree comes in 1725 and the first evidence for its content comes in Prichard's *Masonry dissected* of 1730, its acceptance was very slow, in some areas it was not generally worked until the 1770s and 1780s. The essential was to be *made* a Mason; they did not talk of initiation until the 19th century. The registers 1769–1813 of the premier Grand Lodge list only the '*when made a Mason'* date and have no columns for recording when, if ever, the third degree was taken.

Randle Holme III appears to throw a slight spanner in Brother Mandleberg's idea. In his *Academie of Armoury*, (1688), Holme writes:

> 'I cannot but honour the Fellowship of the Masons because of its antiquity; and the more so as being [myself] a member of that Society called Free Masons.'

Holme is clearly differentiating between separate and distinct 'trade' and 'speculative' organisations but has 'Fellowship' as the operative part. I would be interested in Bro. Mandleberg's comments.

The speaker raised the thorny question of the 'Acception' within the London Company of Masons. In this lodge we have been lazy on this subject because of Edward Conder's *Hole Craft and Fellowship*, (1896). What should be remembered is that at the time his book was published, Conder was both Master of his lodge and of the London Company of Masons and by no means an impartial commentator. If someone is looking for a research area, this one is ripe for review, not only by re-examining Conder's book and his papers in *AQC* 9 (1896) and *AQC* 27 (1914), but by going back to the original records of the London Mason's Company, now housed in the Guildhall Library.

In relation to the London Company Brother Mandelburg in his spoken version of the paper claimed it was unique. It was not. There was a thriving medieval gild system in the City where I was born, – Newcastle-upon-Tyne. The Masons' Gild still exists today, as does the Goldsmiths, Taylors and those for other Crafts.

Brother Mandleberg states, rightly, that his paper is not about our origins and said

that his theory was based on intuition rather than evidence. But cannot that also be said about all the other theories as to our origins (however wild they may be) that have appeared in print over the last hundred or more years? Can we persuade Brother Mandleberg to put pen to paper and do what Freemasons are supposed to do: *speculate?* Worshipful Master I congratulate and thank the speaker for the breadth of his learning (as a scientist he is no mean historian!) and for giving us something worthwhile to think about.

Bro. Ken Blackhurst wrote:

I would like to thank Bro Mandleberg for presenting an excellent and thought provoking paper; he has taken a subject which often runs into the realms of fantasy, focused on the practical issues and presented the facts in a clear and logical manner. His paper presents a number of topics of personal interest such as the works of Alberti and Brunelleschi; however, I would on this instance like to comment on the Craft operatives.

Architecture and building, due to the scale of manpower and money required for major projects has, of necessity, since time immemorial, required a Craft structure consisting of project directors liasing with clients of a high order, supervisors, masters, journeymen and apprentices; a phenomenon which many other Crafts did not experience until the advent of the industrial revolution. I briefly offer by way of comparison, examples of other Crafts and their Societies which may provide points of discussion for further investigation; I take these notes from a paper in preparation.

Masonry is not the only institution which has secret modes of recognition[1] many Crafts employ the square and compasses in their emblems,[2] squaring the lodge was a common term used in the 18th and early 19th centuries and the handshake was a sure sign for the journeyman.[3]

Pre-industrial or more precisely mediaeval society consisted of the 'three estates' – the nobility, the church and the remainder; the third estate consisted of merchants, minor landowners, craftsmen, agricultural workers etc. The ordinary working man and in particular the freeman or unbonded craftsman had to provide for himself and his family, these men lived chiefly in the towns.

The old Crafts, of which the Brushmakers is one of the oldest, the Manchester Society being founded in 1747, consisted of two grades – the apprentice and the master.[4] An apprentice at the end of his seven years would be presented with his papers[5] and declared a fellowcraft or master of his craft, the new fellowcraft would then usually become a journeyman master brushmaker[6] and enhance his understanding of the trade by working in several shops of older more experienced masters. In pre-industrial society, the shop owner was still a master working the tools. The 1563 Statute of Apprentices decreed that no person could enter a trade unless he had served apprentice, this remained in force until 1814;[7] in 1710 stamp duty on indentures was introduced and records centralised.[8] The Statute also confirmed that a Journeyman should serve until the age of 24,[9] thereby creating a distinction between the journeyman master and the shop master, developing into a quasi tri-gradal system.

Where there was a Craft gild then many of the richer shop masters became liverymen whereas the journeyman became yeomanry. The Brushmakers did not form a craft gild but apprentices having journeyed for three years were called 'freemen' and entitled to full Society benefits.[10,11] The 17th century sees a perpetual struggle between the livery and the yeomanry. The ratio of apprentices to journeymen was strictly controlled by the Craft society or gild.[12] Many small masters belonged to the Journeyman's Craft Society. More and more the rich masters were distanced from the journeyman and the workplace, often rich entrepreneurs joined the Livery who had no Craft knowledge but employed cheap irregular labour, often parish apprentices.[13] The Journeyman or fellowcraft constantly battled for their rights. The Journeyman however had the influence to prevent their members working in irregular shops. The Brushmakers secret

whistles became modes of recognition to distinguish regular brethren[14] from irregular tradesmen, and their communications carried in 'tin boxes'.

There was a Royal Proclamation in 1718 against Journeymans' clubs[15] and a 1720 Act criminalised combinations amongst the London Crafts.[16]

The gild or society festive boards served to illustrate further the difference between the richer masters and the journeymen, in 1771 the Coachmakers dinner was cancelled because 'proper members' could not dine in decency,[17] similarly in 1781 the Founders' journeymen were barred because of their behaviour.[18]

At the end of his apprenticeship the new fellow would be invited to join the Craft Society and the certificate issued here was more dear than the papers presented on the passing of his apprenticeship by the shop owner.[19] This certificate guaranteed his acceptance among a journeyman brotherhood (and sister hood[20,21]) and was a declaration that the holder was of the required competence.

The journeyman system was an effective method of ensuring an ample supply of master brushmakers in areas of demand and easing the poor relief in areas of unemployment. This was the 'Tramping System', as applicable to masons as it was to brushmakers, the only difference being that masons would travel to specific construction sites, as opposed to a 'tramp route'.[22] However with the advent of the railways the tramping systems had to adapt abruptly, and tramps were paid travel benefit to known shops with work. Later emigration payments were also encouraged.

The new fellow would be initiated into the Society, often in the upstairs room of a local tavern[23] where he would be questioned on his character and charged with the regulations of the Society, he would pay his initiation fee to the secretary, minutes of previous meetings read and affirmed; then there would be much merry making and ale drinking.[24,25] At subsequent meetings the new fellow would pay his weekly subscription to the Society, part of which was allocated to the Charity chest; fines would be levied on absentees and cases of poor behaviour which reflected badly on the Society fined. There was a secretary and a charity steward, there were wardens and stewards to keep the pint pots full.

Often the tavern was the local lodging house, and the innkeeper would have a key to the Society chest which would be kept in the upper room.

On initiation into the Society the fellow would be presented with a certificate, this was also his 'tramping card' or travel permit (this identified the carrier not only as a Society member but as a journeyman on the tramp, this prevented him being arrested as a vagrant by local magistrates). The Brushmakers tramping route covered the whole country including Ireland (a distance of 1210 miles with 42 stops, travelling anti-clockwise), a journeyman would present himself to the local Society secretary (or maybe the innkeeper who would send for the secretary) offer his travel card[26] and mode of recognition (in the case of the Brushmakers it is a whistled tune), once satisfied that the journeyman was a *bona fide* member he would be offered a jug of ale and food, and found a bed for the night. Alternatively in the early days he would present himself to the shop foreman. The Society wardens were responsible for checking the standards of hospitality offered to its members by the innkeepers.[27] If it was a Society night the journeyman would be an invited guest and be entertained, there exchanging stories and news of other local Societies. If work was available the journeyman would be found employment in an approved shop; if not then he would have his permit signed by the secretary and provided with money for food and lodging until he reached the next town on the Society Tramp Route.

The London Society of Journeymen Brushmakers book of Society rules and regulations issued in 1833 not only details the Tramping Route with details of the miles between towns but also the allowance to be provided, it also provides a Muster list entitled the Steward's Call list.[28]

The earliest local brushmaker society was the Manchester Society founded in 1747, the London Society published a directory in 1829[29] which lists 40 independent societies amongst them Bristol and Birmingham formed in 1782, Leicester in 1785, Leeds in

1791 with Bolton and Blackburn in 1829. In the early days Manchester and Bristol were dominant but by 1828 London was established as the Head Office and established the Brushmakers Benevolent Institution. William Kiddier, the brushmakers' historian[30] insisted that the Brushmakers Society was founded by Thomas Paine (author of *The Rights of Man*).[31,32] There was an Independent Society of Brushmakers which existed from 1810–1825. Industrial progress and crippling economic slumps, which drained local unemployment payouts from local funds, drove societies ever closer to national amalgamation. A number of local societies amalgamated in 1839 to form the United Society of Brushmakers. The Amalgamated Society of Brushmakers was formed in 1889, followed by the Federation of Trades Unions in the Brushmaking Industry of 1912. A new National Society of Brushmakers was established in 1921 with membership finally being transferred to the Furniture, Timber and Allied Trades Union in 1983.

At regular periods the accounts of the Society would be reconciled against the Home Society of the Journeyman, this was called squaring the accounts or 'Squaring the Lodge'. As industrialisation spread, populations soared, societies combined to pay relief (sickness, travel, burial and pensions) even societies of differing trades paid members of other craft societies; numbers in the old crafts dwindled as the new metal trades increased; eventually (*c.* 1820s) the Friendly Society took on the role of 'equalisation' of society accounts.[33]

The Birmingham Society of Brushmakers arms of 1782 bear the square and compasses along with the shears and awl as tools of the Craft.[34,35]

An apprentice's certificate of 1830 issued by the Leicester Society again shows the square and compasses with other tools[36] plus a handshake, it is signed by the secretary, senior members and the stewards.

The Arms of the United Society of Brushmakers[37] shows the square and compasses amongst the tools with the logo 'united to protect not combined to injure'. They also show in the 1840 version the 'welcome grip' irradiated in the heavens. Similarly the Staveley Brushmakers Arms of 1815,[38] and the Leeds arms of 1791.[39]

Interestingly the British Brush Manufacturers' Association emblem (1908) which represented the manufacturers' interests especially with regards to the importation of raw materials, setting of wage rates and trade conditions maintains all the devices and tools except the square and compasses;[40] the Lynn Regis Brushmakers' Arms of 1786 similarly omits the square and compasses but has the motto 'May our trade in love and unity ever flourish to keep out those that would our rights demolish'.[41]

The scale of growth in the industry can be seen from Bristol records, there were 9 members in 1734, 58 by 1780 and by 1782 formed one of the largest societies.[42]

In construction works, often whole groups of craftsmen travelled to a location, not only tied by their Craft loyalties but also by religion or place or origin. An example of a group of craftsmen travelling to, and settling in, an area and then participating in mutual charity and community projects can be found in documents relating to the history of Horningsham Chapel in Wiltshire and Longleat House. Listed amongst the Craftsmen at Longleat was a group of freemasons, bricklayers, carpenters, sawyers and labourers all from Scotland, who in 1566 constructed for themselves what is now England's oldest free church. A similar phenomenon exists in NE Lancashire where many previously Presbyterian chapels evolved into Independent or Congregational chapels.[43] My primary research indicates that especially in the late 18th to early 19th century most independent preachers were of Scots origin or descent, and many were indeed Atholl masons, as well as being members of their own Craft societies. The local congregational chapels around Bolton and Blackburn are still referred to as Scots chapels. Of course Non-Conformists, of whatever trade, had to bond together for mutual support as they were excluded from many Establishment occupations.

Notes

[1] E. Conder, *Records of the Hole Craft and Fellowship of Masons* (London, 1894) – 'A Staffordshire observer noted the custom by which the roving mason would identify himself to local lodge members by a secret sign as potent as any document. The traveller's signal would bring a fellow mason down even from the top of a steeple'.

[2] R. A. Leeson, *United We Stand: An illustrated history of trade union emblems,* (Bath, 1971).

[3] The Friendly Iron-moulders Society coat of arms on a 19th century 'drinking' pot, illustrates a travelling craftsman being greeted with a handshake by a shop mate 'Brother Craft can you give me a job', 'If we cannot we will assist you'.

[4] M. Scantlebury, *Coventry Apprentices and Master Brushmakers* in *The Journal of The Society of Brushmakers' Descendants*, vol.2, no.7 (1998), provides a list of master brushmakers and their apprentices from 1788 (with details of father's name and trade); it is clear that the Craft consisted of two grades only.

[5] A certificate issued to Thomas Stonhouse having served his apprenticeship with Messrs Clarke and Burbidge of Leicester issued 25 Sept 1830, shows the sign of the Brushmakers Society with the working tools of square and compasses, awl and scissors, together with the journeyman's 'handshake', it is signed by senior members, stewards and the secretary.

[6] In continental Europe the custom was different still, and the *Wanderjahr* system of tramping prevented newly declared fellows from setting up shop in competition with existing masters in the locality.

[7] K. Doughty, *Brushmaking, Apprentices and All Things Fishy* in *The Journal of The Society of Brushmakers' Descendants*, vol. 1, no.7, (spring, 1995).

[8] Public Record Office, Kew – however charity apprentices were not liable to stamp duty and records were therefore kept locally.

[9] E. Howe and H.E. Waite, *London Society of Compositors* (London, 1848) – this age limit was imposed by law in London from 1556.

[10] B. Pegler, *A List of Freemen of the City of Gloucester (with brushmaking connections)* extracts from 'A Calender of the registers of the Freemen of the City of Gloucester 1641–1838' (Bristol and Gloucester Archaeological Society) in *The Journal of The Society of Brushmakers' Descendants*, vol. 1 no.12 (summer 1996).

[11] R. A. Leeson, *Travelling Brothers* (London, 1979) p.129 – among the tinplate workers there was a blue card for a free member and a black card for a non-free member. The masons gave free members a white card, new members a yellow one. Highest status of all in both trades went to the 'green card' man on tramp because he was on strike.

[12] R. A. Leeson, *Travelling Brothers* (London, 1979) – 'In theory a craftsman who served seven years and then paid the "upstart" or "upset" fee could take on an apprentice or employ a journeyman and thus advance himself. But unless he could gain a place in the livery he was limited by Craft rule to one apprentice. A liveryman was entitled to two or three according to trade and the chief master of the company to three or four'. The liveryman racked up the 'upset fee' to hold back journeymen from becoming masters.

See also C. M. Clode, *Early History of the Merchant Taylors Company* (1888).

[13] K. Doughty, *op. cit.*, – interestingly the records of the Fishmongers' Company in the Guildhall provide the names of some 49 brushmakers becoming members of the Company between 1774 and 1815. Eg. '10 December 1779 Thomas Haddock son of foreman Haddock of St Johns Horseleydown, a carpenter doth put himself apprentice to John Gimber, Citizen and Fishmonger of London (by trade a brushmaker) and living in the parish of St Mary Magdalene, Bermondsey for seven years from the date of indenture for a consideration of £10.10.' also *Fishmongers Apprentices 1740 – 1774* in *The Journal of The Society of Brushmakers' Descendants*, vol. 1, no.8, (summer, 1995).

[14] The Brushmakers' Society compiled a list of 'legal journeyman Brushmakers' each year, a few copies survive and were rescued from the Society Chest by William Kiddier in the 1920s; they are now preserved at the Working Class Movement Museum, Salford. (1829, 1851, 1865, 1869 and 1870). *See also*: *The Journal of The Society of Brushmakers' Descendants*, vol.2, no.5 (autumn, 1997) p. 37.

[15] R. A. Leeson, *Travelling Brothers* (London, 1979), p.86.

[16] A. Aspinall, *The Early English Trade Unions* (London, 1948).

[17] Illife, *A History of the Worshipful Company of Coachmakers and Coach Harnessmakers of London* (London, 1937).

[18] W.M. Williams, *Annals of the Founders Company* (London, 1867).

[19] A certificate issued to Thomas Stonhouse having served his apprenticeship with Messrs Clarke and Burbidge of Leicester issued 25 Sept 1830, shows the sign of the Brushmakers Society with the working tools of square and compasses, awl and scissors, together with the journeyman's 'handshake', it is signed by senior members, stewards and the secretary.

[20] R. A. Leeson, *Travelling Brothers* (London, 1979) p. 66 – women made up three percent of the membership of the London Company of Weavers, usually by right as widows of deceased weavers; Company historians estimate that women made up one percent of apprentices serving time in the trade.

[21] P. Carter, 'Women Brushmakers and Society Men' in *Working Class Movement Library*, Bulletin no. 8 (Salford, 1998). – The Female Brushmakers' Amalgamated Society was founded with the support of John Spencer, the president of the United Society of Brushmakers and John Kelly of the Brushmakers of Scotland Protective Association.

[22] J. Greenwood, *On Tramp* (London, 1883).

W. Newton, *Secrets of a Tramp Life Revealed: A guide to the Public* (London, 1886).

F. Bower, *Rolling Stonemason* (London, 1936).

W. Duthie, *A Tramp's Wallet, stored by an English Goldsmith during his wanderings in Germany and France* (London, 1858).

A. Redford, *Labour Migration in England, 1800–1850* (Manchester, 1964).

[23] R. A. Leeson, *Travelling Brothers* (London, 1979) – appendix 'The Tramping Pubs'.

[24] J. Dunlop, *Philosophy of Artificial and Compulsory Drinking Usage in Great Britain and Ireland* (London, 1839).

[25] J. Blenkinship, 'Possible Jottings of Richard Moss', in *The Journal of The Society of Brushmakers' Descendants*, vol.2, no.1 (autumn, 1996), p. 19–21. '…you have no idea of the elation and feeling of success when my seven years were over! There was great celebration. First we went 'health drinking' then I received my completed indenture from John Barnes. Later that night we went to the Joiners Arms in North Street, Preston for me to pay my dues, be given my certificate, also be taught the whistled signal. At last I was an adult tradesman. I could go and ply my trade where I wanted, or where there was work…'

[26] Transcript of a surviving blank card belonging to David Boon of Walsall dated 1889 reproduced in *The Journal of The Society of Brushmakers' Descendants*, vol. 1, no.6, (winter, 1994–5), p. 31.

[27] A. Kahan, *Manchester Typographical Society – a chronology of major events in the history of the union, with pertinent extracts from the minutes* in *Working Class Movement Library*, Bulletin no.9 (Salford, 1998) – '1827 – that the Society do remove to some other house of consequence of the general badness of the ale with which we are served.'

[28] Extract from 'Rules and Regulations of the London Society of Journeymen Brush Makers' dated April 1833, in The Journal vol.1 no.11 (spring, 1996), p. 14; (publ. The Society of Brushmakers' Descendants).

[29] J. Smethurst and P. Carter, 'A Society of Brushmakers' in Working Class Movement Library, Bulletin no.9 (Salford, 1998).

[30] W. Kiddier, *Old Trade Unions.*

[31] K. Doughty, 'Thomas Paine, The Truth?', In *The Journal of The Society of Brushmakers' Descendants*, vol.2, no.1 (autumn, 1996) – Thomas Paine met Benjamin Franklin in 1774, and Franklin advised Paine to go to America provided him with letters of introduction. (in the article, Doughty explores Kiddier's assumption that the Dr Paine who 'founded' the Brushmaker's society is the same as Thomas Paine the author). He also comments that the badge of the Society was 'In God is All our Trust' and the USA adopted 'In God We Trust'.

[32] *The Journal of The Society of Brushmakers' Descendants*, vol.1, no.12 (summer, 1996), p. 31.

[33] R. A. Leeson, *Travelling Brothers* (London, 1979), p. 128.

[34] *The Journal of The Society of Brushmakers' Descendants*, vol.1, no.3 (spring, 1994), p. 12.

[35] P. Carter, *A Certificate signed by the Elders – Brushmakers Society Emblems in the WCML Collection* in Working Class Movement Library, Bulletin no.9 (Salford, 1998) also P. Carter, *Banners of the Brushmakers*, Working Class Movement Library, Bulletin no.9 (Salford, 1998).

[36] The Guildhall, London, hold an interesting collection of Brushmakers' business cards, some illustrating tools of the trade or factory premises.

[37] K. Doughty, 'A Guided Tour of a Banner'in *The Journal of The Society of Brushmakers' Descendants*, vol. 1, no. 4 (summer, 1994), p. 4.

[38] M.J. Watts, 'Staveley Brushmakers Arms 1815 and Freemasonry', in *The Journal of The Society of Brushmakers' Descendants*, vol. 1, no.9 (autumn, 1995), p. 29 – one in a series of articles querying the use of 'masonic' devices on craft arms (interesting but not well informed articles).

[39] P. Carter, *A Certificate signed by the Elders – Brushmakers Society Emblems in the WCML Collection* in Working Class Movement Library, Bulletin no.9 (Salford, 1998).

[40] *The Journal of The Society of Brushmakers' Descendants*, vol. 1, no.10 (winter, 1995–6), p. 4.

[41] *The Journal of The Society of Brushmakers' Descendants*, vol. 1, no.6 (winter, 1994–5).

[42] L. Beale, Bristol Brushmakers commenting on 'A History of Brushmaking' produced by the Kleeneze Co. (1960) in *The Journal of The Society of Brushmakers' Descendants*, vol.1, no.3 (spring, 1994), p. 43.

[43] A. Ruston, *My Ancestors were English Presbyterians / Unitarians* (Society of Genealogists, London, 1993) – gives a brief history of the dissenting chapel movement and a useful list of research archives.

Bro. Tobias Churton wrote:

While I enjoyed Bro. Mandleberg's research into renaissance architecture and medieval building projects, I was intrigued to know why his paper danced a stilted tango around the question of 'secrets', especially 'esoteric' or 'mystical' secrets. I wish he'd told his readers what he meant by such phrases. I thought the issue was about covert means of identifying oneself as being a *bona fide* tradesman. He should have defined his terms at the start. I am genuinely confused by his mixing different concepts of 'mystery' and 'secret'. I presume he wants to say that medieval carvers and cutters were not mystics or proto-Rosicrucians or some such, or members of the Golden Dawn! But it's clear that our general use of the word 'esoteric' derives from the post-Enlightenment and really

means any knowledge discarded by rationalists as having no basis in scientific demonstration. But would the churches like to think of themselves as having such knowledge? Obviously not, so in their turn 'esoteric' becomes pagan/witchcraft and... occult! So Mandleberg, speaking for the world of 'science', could and maybe should have called his paper: 'Were Medieval Builders Occultists?' A reasonable question no doubt.

So let's get to the point. Mandleberg lets the key word slip out – just once. Medieval masons had (he says) no truck with 'Gnostic heresy'. At last! This is what the fuss is all about. And this is the question that underlies so much of the approach of the author. Is Freemasonry mutually congenial to 'Gnosticism'? Was medieval masonry a conduit of Gnostic/Hermetic thought? Were lodges enclaves of folk with secret knowledge of the universe/God/man? Very different questions to those that concern whether medieval masons used signs to recognise one another.

We should not get carried away by adjectives such as 'medieval' – a handy term requiring hindsight and based on some questionable assumptions. We know from Dr Plot and others in the 17th century that operative masons had secret signs of recognition. We need not doubt that this was a tradition of longstanding. It certainly preceded non-operative masonry. It needs to be grasped that for an intellectually elevated mason (a true Master Mason), geometry was a mystical secret: a creative law of God – a mystery by virtue of its depth. A diagram quickly becomes a symbol in the mind of such a one. The key element is imagination – what the semi-enlightened rationalist most fears and perpetually ignores. Imagination is the power of creation itself. From this point of view, geometry is merely the external imprint of deeper truth, cut and squared for the rational faculty. That men of the 'middle ages' were aware of this mode of thought and experience has been demonstrated fully in the annals of the Warburg Institute and other places of serious study.

It is perfectly obvious that lodges of medieval builders were not centres of initiation into graded consciousness raising. But consciousness can be raised by practical disciplines! But that we would say today is 'subjective', not formal and necessarily intended.

What people seem to be looking for is something like occult Freemasonry of the Gold und Rosenkreuz mode operating centuries before, when it plainly isn't going to be found – since the romantic occultist masonry of the 18th century was itself a reaction to the loss of the renaissance and the sterilising effects of enlightenment knowledge. It is a simple fact that when repressed, gnostics become more discrete and form other associations. The $64,000 question for historians of gnosis, such as myself, is whether masonry could ever have furnished such associations with locus and symbol. These are questions to which I could happily address myself, if I had the time at this time!

I more or less agree with the thesis insofar as it makes the point that the explosion of interest in Architecture and symbolic Pico della Mirandolaesque neo-Neoplatonism with its pleasure in double and triple meanings encoded in myths &c. seems to belong most clearly to the 16th century. However, such interests are of course not unique to that century. Printing provides a wealth of evidence that may partially deceive our eyes by its abundance.

John Dee, for example, had far more time for the 13th century Roger Bacon than he did for the Florentine Neo-neoplatonists. Perhaps we should not be hasty in forming judgements about a field which I suspect is, contrary to Mandleberg's assertion, only beginning to open up. I remember reading A.E. Waite's comment in his major Rosicrucian history: namely, that he was convinced little could be found which would elucidate the matter further than his own researches had taken him. In fact, the entire field has been monumentally transformed. But how many in England have read Carlos Gilly's epoch-marking work on the formation of the Rosicrucian Manifestos? It's in German. I have written an English version available through Adam McClean's alchemy website.

I think so long as we get confused by basic terms, such as 'secret', 'mystical secret',

'esoteric secret' and so on, without thinking in the manner of the time concerned, we're going to prolong confusion. A 'secret' in apocalyptic theology for instance (Hebr. Sod if I remember right) meant something that God alone knew. The question in our case is not so much who knew, but what was known.

I think that masons should find their history an open empire of adventure and discovery. Origins are mysterious. Good. Let us not be in a hurry to bang doors shut in the name of some spurious historical purism. Science is not God and history is not a made-to-measure courtroom or laboratory. Every basic type of human personality repeats itself more or less in every age. The context – even the terms – may change, but 'He' is always there. And if we look hard, we'll find him – without need to invent him!

Bro. Derek Stuckey wrote:

The following appear to be the principal conclusions of Bro. Mandleberg's paper:

1. Speculative Freemasonry today does not in any way preserve either (a) a vestige of the working practices of English mediaeval stone-workers nor (b) any secret information derived from them.
2. The signs tokens and words in use in Freemasons' Lodges at the present time were unknown to English builders in the Middle Ages.
3. In the earliest of the old manuscript Constitutions – the Antient Charges – there were no oaths of secrecy.
4. Those who played leading parts in the mediaeval English construction industry did not become privy to any closely guarded information.
5. Our ceremonies and the peculiar system of morality which they enshrine, have no lineal descent from, or direct communication with, English building construction work, at least before the 16th century.
6. In the later 16th and in the 17th centuries there were no English lodges of operative masons.

Almost all of these propositions are negative, and most of them are difficult to prove. Even assuming, however, that this paper succeeds in accomplishing this – and I have rarely read a paper which displayed so much industry and erudition – the conclusions must not be carried too far.

It does not follow that Freemasonry has, and always has had, nothing to do with the practices and beliefs of stone masons.

I ask, why Freemasons? Why not Free Carpenters.?

In fact, why confine it to the building trade. Why not Free Dyers, or Free Upholsterers, or Free Weavers?

There is a possible answer to this, in that the stone masons were, and still are, different.

This arises from the nature of their work. The primary tools of the mason from times of antiquity were the mallet and the chisel. The job of the man at the bench, or banker mason, was to bring rude matter into due form, and the rude matter did not help.

The patient work, which distinguishes masons from other building operatives, cannot fail to be reflected in some measure in habits of thought and character.

The Carpenters' Company of which I am a Past Master has a Building Crafts College. They teach stone masonry and fine woodwork. The wisdom of the BCC, with a certain amount of hyperbole, used to be that if you left a class of stone masons for half-an-hour and came back, they would still be chipping away at the stone; but that if you left a class of carpenters for five minutes, they would have started a game of Pontoon.

To take a block of stone, rough hewn from the quarries, and convert it manually, with mallet and chisel, into a perfect rectangular block of specified dimensions, fit for the intended building, takes a degree of skill, time and concentration rarely required in other building crafts.

This has always given stone masons a prestigious place amongst craftsmen.

There are two other aspects of this. A stone mason, making stone into rectangular shapes, had to have a certain knowledge of geometry. Secondly, he had time to think, sometimes spending many hours, or even days, at the same job.

Where is the document of the Carpenters, or of any other building trade, to correspond with the Regius MS ? Or with the Ancient Charges? How many of those are there? Quite a few are there not ?

If the stone masons had had a lot to do with the working tools, the gavel would not have figured among them. There would be a mallet there. Also a hand-held square is not much good for trying and adjusting rectangular corners of buildings. You want Pythagoras for that. The working tools are also pretty vague as to the use of the skirret. In so far as the working tools were used by stone masons, but not necessarily in the attribution of the tools to specific degrees, this part of Freemasonry is derived from stone masonry.

The application of the working tools to our morals, however, is stated to be because we are not all operative masons, but rather free and accepted or speculative. In the absence of any evidence that stone workers held such views, the speculative interpretation of the working tools is not attributable to stone masons.

On the other hand, some of the ideas of Freemasonry flow so naturally from stone masonry, that it would have been odd if they had not occurred to some stone masons. After all, many of these were engaged on the building of churches and cathedrals. They must have included many religious men, and religion for them meant the Bible.

The idea of living stones, built up into a spiritual house, is to be found in 1. Peter 2.

It would be very odd if the analogy between the rough ashlar being made into the perfect square and men being perfected had not occurred to at least some masons chipping away at their rough stone, quite independently of the scriptural passage.

The idea of living stones and spiritual buildings is not an innovation of any speculative Freemasons. It was about in the 1st century AD, and has probably occurred to many stone masons before and since, and in every clime, though not necessarily, as in 1 Peter 2, in a Christian context.

It seems to me that Freemasons should be ready to acknowledge the origin of pre-existing ideas, known to stone masons, which have been incorporated in the Craft.

We should distinguish between elements which flow naturally from us being Free*masons* and not Free*carpenters*, or whatever, which come from stone masonry and those which have no such connection, and come from somewhere else.

Thus the statement about religion in Anderson's *Constitutions* now following, does not appear to be derived from any particular ideas of stone masons.

A mason is obliged by his tenure to obey the moral law; and if he rightly understands the Art, he will never be a stupid Atheist, nor a religious libertine, But though in ancient Times Masons were charged in every country to be of the religion of that country or nation, whatever it is, yet 'tis now thought more expedient only to oblige them to that religion in which all men agree, leaving their particular opinions to themselves; that is to be good men and true, or men of honour and honesty, by whatever denominations or persuasions they may be distinguished; whereby Masonry becomes the centre of union, and the means of conciliating true friendship among persons that must have remained at a perpetual distance.

Individual stone masons may have shared such ideas, but they did so, not because they were stone masons, but as might any other members of the public.

Other elements in Anderson's *Constitutions* are of the same nature.

It thus seems possible, and, indeed, necessary, to distinguish those elements in Freemasonry which are naturally and properly attributed to stone masons, from those which have no necessary relationship to stone masonry. There are important elements in Freemasonry in each category.

In between, there are matters which are difficult to classify, usually through lack of information.

Some of these are dealt with in Bro. Mandleberg's paper, and they are indeed a proper and useful subject of enquiry.

But if there be any doubt about the unique nature of stone masonry among the crafts, it is only necessary to try to envisage Freemasonry, or Free*whatever*, based on any other craft.

Only stone masonry had the necessary prestige, history, Geometry and *gravitas* to form the basis of the speculative Craft. Hence, without departing in any respect from the facts established by the historical evidence investigated in this paper and elsewhere, the stone mason's craft and speculative Freemasonry are irrevocably linked, and the proposition that Freemasonry had, and has, nothing to do with stone masonry, will not run.

What I am saying is that there is a *media via* and that those who appear to be divided by an irreconcilable difference are sometimes not so divided. If it be the fact that there were, in England, no stone masons' lodges which gradually admitted others and turned themselves into speculative lodges, that may be accepted, (though remember the *coelacanth*), and for many modern Freemasons, all that might seem to be a long time ago. But that does not mean that Freemasonry is not derived from the craft of stone mason; because that craft forms the basis upon which the speculative edifice was constructed. If not, we should not be Freemasons, but Free*somethingelses.*

Although in the Introduction to the Worshipful Society of Free Masons, Rough Masons etc. (the 'Operatives') the assertion is specifically disclaimed that its ceremonies in fact represent, or have ever represented, the practice of stone masons or others, it is interesting to note that there are elements in the 'Operative' ceremonies and general 'set-up' which are not inconsistent with the conclusions arrived at in this paper.

Thus the words and signs of the First and Second degrees of the 'Operatives' are different from those of the First and Second degrees of the Craft. The secrets of the 'Operatives' are principally trade secrets. The degree of Fellow of the Craft is not followed by a degree of Master Mason. The Master Masons are the Grand Master Masons, who are described as the owners of the work

Bro. Mandleberg replied

I am only too well aware that when I put pen to paper I tend to become too prolix, and I am ever mindful of this. As a result, in the words of John Wallis, by which this paper is deliberately prefaced, 'there are divers things omitted … which might deserve to be taken notice of; or but briefly touched, which might have deserved a fuller discourse'. I am therefore particularly grateful to Bro. Stewart for expanding so comprehensively on the European MSS *c.* 1350–1550 (I am heeding Bro. Churton's strictures on the use of the word 'medieval'!). Few of these, however, are the work of *English* master-Builders. While there is ample evidence that Italian etc. *post* 1550 neo-Platonist and Vitruvian texts were studied by English Architects, there is little, if any, certain evidence which confirms how far they were familiar with Roriczer or even de Honnecourt. The knowledge which English Master-builders obtained of developments overseas was almost certainly principally derived on the one hand from the employment in England of such men as James of St. George, and on the other from texts translated in the West Country Cathedral Schools, such as that of Euclid's 'Elements' by Adelard, which came from the Greek, through the Arabic, and not from Latin or European sources. Be that as it may, it does not affect Bro. Stewart's principal contention, with which I am in full agreement, that prior to the advent of neo-Platonism, the Master-Builders' knowledge – 'secrets' if I may be allowed to use the term – was pragmatic and empirical rather than esoteric.

At this point I would like to apologise to those brethren, who, without formally recording their observations, have said that they were misled by the title of this paper. I can only agree that it was not very apt, but even with the invaluable benefit of hindsight,

I cannot think of anything else to call a dissertation of which the principal theme was the intention to indicate that whatever secrets Freemasons may have adopted from time to time in the course of the last four hundred years or so, these were not derived from the earlier building trade.

I am also grateful to Bro. Caywood for his detailed analysis of affairs at Bury St. Edmunds. The designation of 'Master' is always apt to cause confusion in the history of Freemasonry, both operative and speculative. There is no doubt that Hugh, and, indeed, many other craftsmen, were truly masters of their respective trades, and were recognised as such by their contemporaries. How some acquired the appellation of 'Master' as a customary 'handle to their name' is uncertain. As John Harvey pointed out 'One of the most puzzling features of the whole problem is our lack of knowledge of the means by which a mason or carpenter graduated as a master. It seems that most of the great mediaeval architects sprang from families of 'masters' who handed on their specialised knowledge to their sons …' (John Harvey, *English Mediaeval Architects,* revised Edition, 1987 p. xlvii.) But I intend no slur on Master Hugh in saying that his title was 'honorific'. I am only preserving the contradistinction between such artisans who do not, at least in England, (whatever may have been the case elsewhere – the Compagnonnage, for example) appear to have undergone any formal test of skill, and the true 'Masters' of Arts or Sciences whose right to the title or rank had been gained formally by examination or disputation at, for example, the Schools in Paris, as Abbot Samson himself had done. (*The Chronicle of Jocelin of Brakelond, Monk of St.Edmondsbury,* [Chatto & Windus, London, 1907], Introduction, p. xviii).

So far as the later building work at the Abbey is concerned, I remain unconvinced that 'Master Hugh' had any part in its supervision even if he were long-lived enough to have done so. That the oversight of such work was customarily assigned to the Sacristan or to the Subsacristan is clearly indicated by Brother Jocelin. 'Now the sacristan (William; CJM) while the abbey was vacant, neither paid any debt nor erected any building' (*ibid.*p.13). 'Samson the Subsacristan (afterwards the Abbot; CJM), who was master over the workmen, did his utmost that nothing which was broken, and no chink or crack, should remain unrepaired … He made a great store of stone and sand for the building and completing of the tower' (*ibid.*p.13/14). 'And afterwards in course of time, the Lord gave him power to perform his wish that he would build the said tower, and to finish it according to his wish.' (*ibid.*p.16) I do not wish to be accused of *petitio principii,* but that the great tower fell down so soon after it was erected is at least an indication that it was not the work of a skilled master-builder.

While 'I have been misquoted' is the well-known refuge of an embarrassed politician, it is not an unreasonable protestation when it refers to a printed Paper. I do not know why Bro. Churton is so pre-occupied with the word 'gnostic', but nowhere in my paper do I say, as Bro. Churton quotes me as saying, 'Medieval masons had no truck with "Gnostic Heresy".' To quote in full what in fact I wrote:

> 'None of this appears to indicate any attempt to conceal any secret matter within the design of ecclesiastical buildings. The intention was to reveal Divine truths rather than to conceal any deeper mystery. To intend otherwise would have been self defeating; *the Catholic Church,* then as now, was Apostolic without any taint of gnostic heresy'

The emphasis was not in the original paper; perhaps it should have been for the benefit of Bro. Churton. It is a plain statement of fact which is emphasised every time the Nicene Creed is recited – 'I believe in one Catholick and Apostolick Church'. Their Apostolicity is fundamental to the proclaimed Gospel of the Western Churches, Roman and Protestant alike. So far as I know there is no evidence which shows whether or not either Craftsmen or Architects, individually or collectively, were aware of or treasured the fruits of any gnostic revelation, but Bro. Churton errs in attributing to me a statement that this was not the case. However, as I understand it, Bro. Churton agrees with me (and, I think, with the mainstream of modern masonic thinking) that operative

Masonry pre-, say, 1450, (I am careful not to say 'medieval', a term which also seems to offend Bro. Churton) was *not* 'a conduit of Gnostic/Hermetic thought', and that lodges of operative masons in the Middle Ages were *not* 'enclaves of folk with secret knowledge of the universe/God/man'.

To a Pythagorean, geometry was certainly 'a creative law of God', and equally certainly philosophers, mystics, esotericists, occultists, call them what you will, preserved a continuum of such speculations for at least a couple of millennia, and some still do so today. (*See* for example, Robert Lawlor, *Sacred Geometry*, Thames & Hudson, 1982) But nothing in the Warburg Institute papers or elsewhere persuades me that in England, at least prior to 1450, either workmen or designers were overly influenced by such esotericism. To them, Geometry was certainly a 'craft mysterie', but a practical one, as Bro. Stewart emphasises in his comments to which I have already gratefully referred.

Alberti's books, the arrival of the Platonic works and of the Hermetic Corpus in Florence, and the re-evaluation of the writings of Vitruvius heralded a new age in which 'mysticism', for want of a better word, became almost a determinant in the design of buildings. These notions were brought to England at a time when the evidence, negative though it may be, demonstrates that whether or not there had earlier been other than ad hoc lodges in that country, they were now so insignificant a part of the social or commercial structure that nothing was recorded about them. And this is where, with respect, I think that Bro. Churton has missed one of the principal points of my paper. John Dee may well have valued Roger Bacon highly. The Rosicrucian Manifestos could hardly have been a spontaneous invention without reference to anything which had gone before, and, in particular, the *Chemische Hochzeit* enshrines some notions which derive almost from pre-history. But the inoculation of the 'learned speculatives' *in England* in the late sixteenth and in the early seventeenth centuries with all these imaginative theses could not have come from their association with operative lodges even in the unlikely event that these ideas had been developed therein, because in spite of Dr. Plot, writing three-quarters of a Century later, they were not there at that earlier date to associate with. Whatever were the modes of recognition, and from wherever these were derived, there also appear to have been other 'secrets' within the seventeenth century Fellowship, even if these were no more than matters which it was considered imprudent to discuss openly (the charges made at Cerne Abbas spring to mind), and these had surely been derived from the 'new learning' rather than from operative lodges. Naturally the 'imaginative' ideas had an ancestry, but there was no mechanism by which they could have been transmitted from operative lodges, even if the latter had possessed them.

I am uncertain why Bro. Churton apparently considers that I have also asserted that pre-16th Century mysticism (or whatever he prefers to call it) is now 'a closed book'. Far from it. To make my position clear I may say that for the derivation of certain concepts, I prefer to go back to the Ikhwan. I am not a 'modern' Kaballist, but the influence of the Kaballa on our syncretic system requires an even more detailed investigation than it has already received, specifically in its Christian interpretation. There is a masonic degree, outside the Craft, but one of the 'Orders of Chivalry' in which the 'Act of Union' allows us to participate, which is considered eminently respectable but of which a significant part would not have been unfamiliar to a devotee of Mithras. I am a little confused when Bro. Churton queries 'whether masonry could ever have furnished such associations with locus and symbol'. Is this a veiled reference to the *loci* and *imagines* of the *Ars Memorativa*? Surely the reason for our repeated search for a Word and a Stone must be sought for in the coalescence of the objects of alchemical discovery – 'the stone that is not a stone'. I certainly do not scorn work on the origins of the Rosicrucian Manifestos, even though I may take much of Waite's work with a pinch of salt. While I consider that English speculative freemasonry is *based* on orthodox revealed religion, I am in no doubt that it has been watered by many other tributaries, and anyhow, I admit that this begs the question of what the early speculatives considered to be 'orthodox'. Dee's view on communion with angels was at

least *sui generis* although he was professedly Christian. I must ask Bro. Churton to bear in mind that I was not attempting to write a paper to delineate what were the origins of Freemasonry, but rather what they were *not,* and to remember that I prefaced it with John Wallis' statement that there are divers things omitted which might have deserved a fuller discourse.

I am particularly grateful to Bro. Stuckey who has brought his wide experience of related matters 'outside the Craft', to his reasoned analysis of my thesis. I cannot disagree with his summation of it in his initial 6 points, with the possible exception that 'lineal' is a less definitive term than 'direct', a word which better describes the chain of transmission which I consider does not exist.

It would, I agree, be foolish to deny that much allegory and imagery is rooted in the distant past, and that there is in many cases a considerable commonality between what has been transmitted down the ages in various contexts in numerous disparate human societies. But unless a connection is proved, these remain disparate. For example, the late Bro. Sir Lionel Brett once wrote to me that while he was District Grand Master in Nigeria, 'a Yoruba Chief was elected for initiation into Freemasonry, but refused to submit to the hoodwink, saying that when made a Chief he had been deprived of and restored to light and would not go through it again. And that was that'. No one, I think, would suggest that there is any connection between English masonic Initiation and the conferment of Yoruba Chieftainship. Even if St. Peter's views on living stones were familiar to contemplative operative masons (of which there is no evidence) as well as to speculative Freemasons, this would prove no more than that both were familiar with Holy Writ. (But how familiar with Holy Writ would operative masons have been before Tyndale's English translation of the Bible in 1535?). Bro. Stuckey does not refer to the allegory of 'The Headstone of the Corner', which is likewise derived from the building trade, but this goes back at least to Psalm 118, written almost a millennium earlier than the Epistles of St. Peter. If disparate groups in different epochs were each found to be aware of this quotation, it similarly would not prove a connection between them. Phrases such as 'Ye are living stones' become absorbed into general usage without there necessarily being any direct or 'lineal' connection between the users. Not everyone who enquires 'Are you being on the level with me?' is a Freemason, operative or speculative, and may even be unaware that he is using an analogy from the masons' trade. I find it difficult to accept that the unrecorded musings of contemplative stone-workers contributed to the evolution of a formal system of moral allegory

Bro. Stuckey's series of questions 'Why Freemasons? Why not Free Carpenters?' has, I suggest, two possible answers. The first is 'But there were!' Admittedly while there are, in Bro. Stuckey's later terminology, no other Free*whatevers,* there have been several Free *Whatevers.* Bernard Jones lists, for example, Free Sewers, Free Tylers, Free Vintners, Free Fishers and a few others. (Bernard E. Jones, *Freemasons Guide and Compendium,* p.152, 1st Edn., 1950). Specifically in the building trade there were Free Carpenters (*see* Bro. Fred J.W. Crowe, *AQC* XXXII [1914], p. 5). Considerable work is currently being carried out on the Free Gardeners (*see* Robert Cooper, Newsletter, Friendly Societies Research Group, p.1, April 2000) in which the author makes the remarkable statement that 'The thrust of my research was therefore not concerned with a friendly society but rather with the circumstances which gave rise to an organisation which only later developed into a friendly society', an organisation which had a 'Lodge' as early as 1676, and which produced 'artefacts (aprons, sashes, medals, certificates, banners, etc)'. In this connection Bro. Blackhurst's comments are also of considerable interest even though he gives no indication of any speculative content being involved in the activities of the Brushmakers Society. This seems to have been predominantly a Friendly Society or even a Trades Union. But his well-researched remarks certainly deserve to be preserved in the current Volume of *AQC*, and it is of particular interest that some of his 'ritual' quotations might have been taken directly from a masonic Degree 'outside the Craft' with which many will be familiar.

I am well aware that the etymology of 'Freemason' has been the subject of dispute for

many years. I cannot believe that 'Free' and 'Mason' should have been so generally amalgamated into a single word, something, as Bro. Stuckey points out, which happened to none of the other 'Free' trades, if, as is evidently the case in the examples cited above, it meant no more that that a journeyman was 'free of his apprenticeship bond' or had the Freedom of his Livery Company or Gild. Indeed, the scanty evidence of the 'Accepcion' seems to indicate that at least some of those 'Accepted' (as Freemasons?) were not necessarily Freemen of the London Company of Masons. It seems more probable that in England 'Freemason' was no more than a contraction of 'Free-stone Mason' (Jones, *loc. cit*. p. 151), a supposition to which added weight is given by the prevalence in Scotland, where free-stone was less readily available, of the simple term 'Mason', for example as in the term 'Mason Word'. This leaves unanswered the question of why a speculative society should have taken upon itself the name of 'Freemasons' and appears to have adopted copies of the old MSS Charges to confer regularity on its meetings (but I suggest one possibility in my text, an unsupported speculation which I am surprised that no one has challenged). However in my view this derivation disposes of the thesis that Freemasons are 'different' in the sense that Bro. Stuckey advocates – that stonemasonry is a more contemplative occupation than carpentry, and thereby handed down moral precepts.

I suggest finally in this connection that any historical assertion made by Anderson has to be treated with so much caution that, in effect, 'what the soldier said isn't evidence'.

I particularly appreciate the kind words of Bro. Hamill, to whom I must apologise for ignoring the Gilds in his native city of Newcastle-upon-Tyne. I am grateful to him for having encouraged me in the past to persevere with my criticism of the 'Transition theory'; further to demonstrate its implausibility was a principal object of this Paper. I am fully in accord with his views on the persistence of the 'Fellowship' and I also have developed the 'second degree' background to the Installation of a Master of a Lodge elsewhere. I am, however uncertain whether Randle Holme III is in fact differentiating between two organisations; if the 'Fellowship of the Masons' was distinct from 'that Society called Free Masons', why is there no evidence elsewhere for the 'trade' Fellowship?

It is with great sadness that I conclude by expressing my posthumous thanks to the late Master of the Lodge, Bro. Dirk van Peype, for proposing the Vote of Thanks, even though he will never be able to read them. I was honoured that a brother of his depth of knowledge and experience should approve the paragraphs in my paper on Sacred Geometry and on the neo-Platonic revival, because this praise came from a freemason who, by whatever standards he might be judged, must, in every sense of the word, be accounted a Master in the Craft.